FEB. 10 1961

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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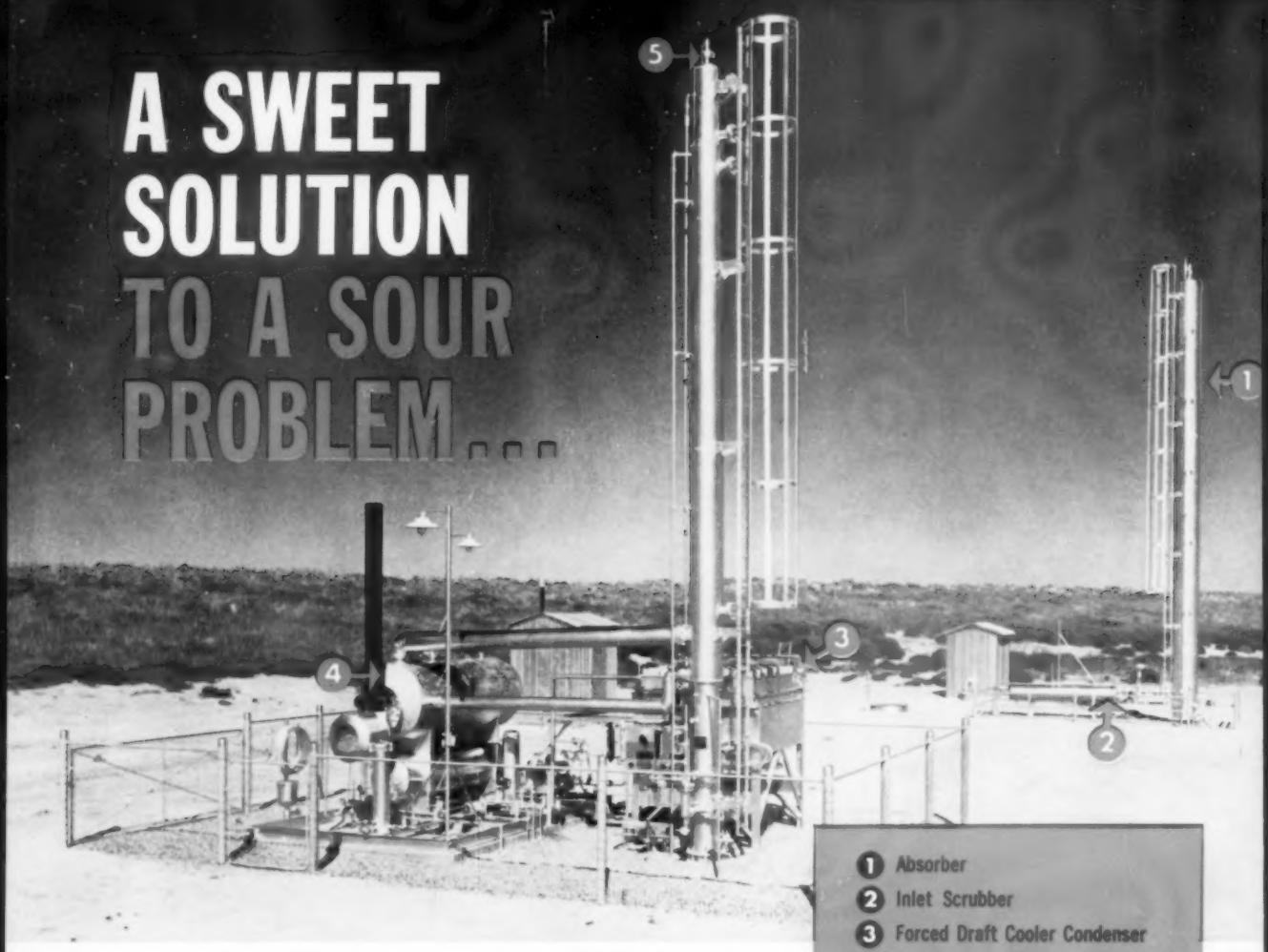

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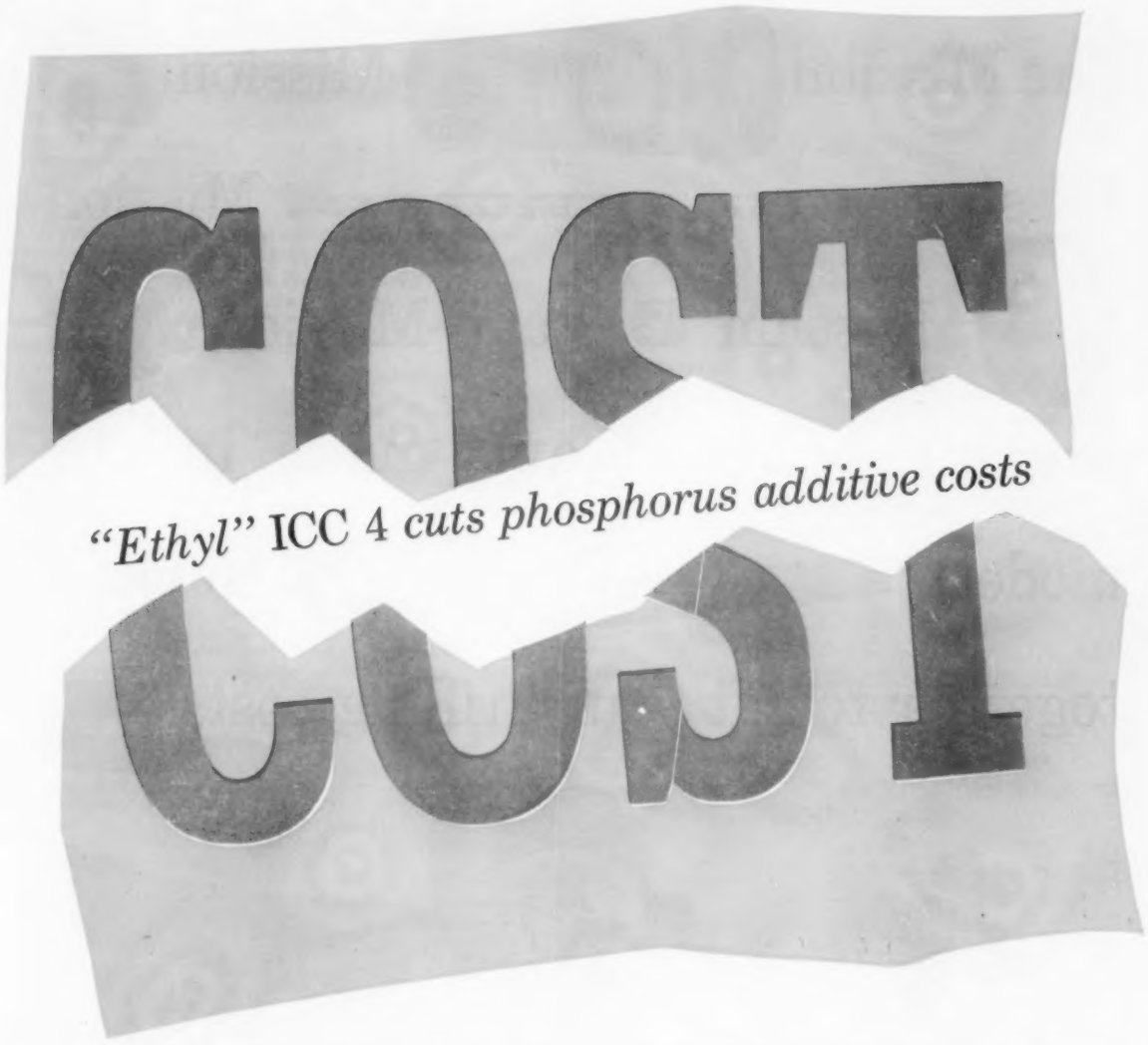

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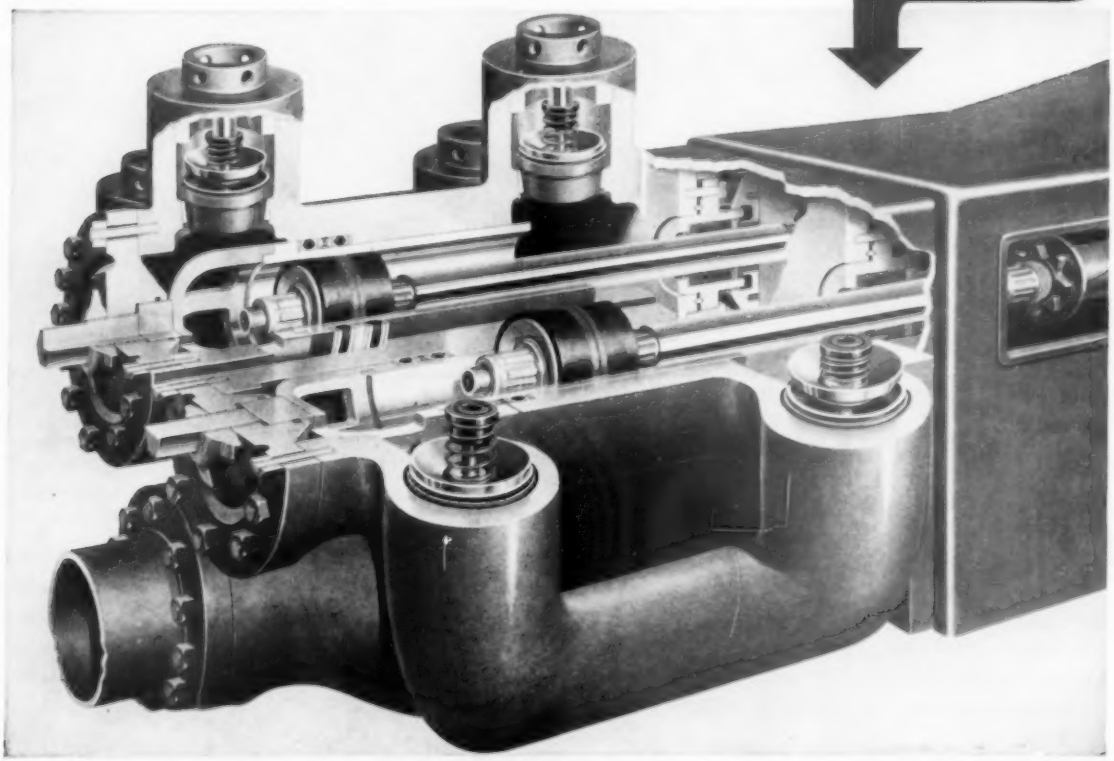

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INSIDE *Slant*

PIPER WANTS HIS PAY

We are not subscribers to any share the wealth plan, or anything similar that smacks of the theory that you should share your good fortune with others.

But the integrated companies, which are purchasers of crude, are going to find it most difficult combating the price increase clamor now being made by independents.

Producers have been beating the drums for the increase for some time now, and fuel has been added to their efforts by the more than favorable earnings statements of those who buy their oil.

The producers, even before the impressive earnings for 1960 were revealed, were pressing for a price increase; an increase that the majority felt was justified based on third-quarter earnings (PW—Nov.18'60,p3).

What the crude purchasers must remember is that the favorable earnings stem, to a large degree, from the gearing of supply to demand.

It's true that economy moves within the industry also contributed, but the austerity program certainly didn't create market stability.

The restriction of output to demand did.

LeRoy Menzing
Editor

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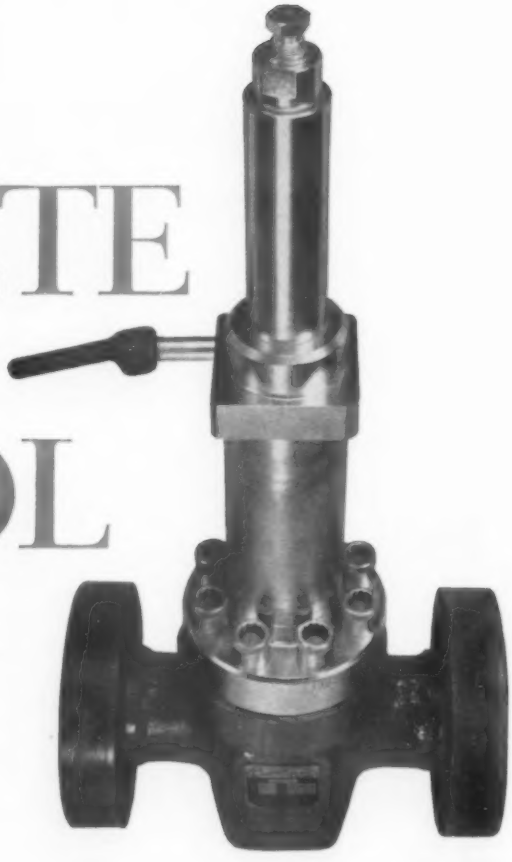

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60-Second Summary / WHAT'S HAPPENING IN OIL

February 10, 1961

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Interior Secretary Stewart L. Udall made it clear this week that he will decide his department's petroleum policies. He designated himself as co-chairman of the National Petroleum Council. . . . p. 14

•

Canada now hopes, with the aid of substantially increased exports to the U.S., to boost oil production to 800,000 b/d by 1963. It decided against a proposed pipeline to Montreal and against placing controls on imports in the east for the present. . . . p. 12

•

'Compact' gas processing plants are flourishing in Alberta. Behind the building surge is a growing export demand for gas. . . . p. 18

•

More exacting fuel requirements for cars of the future mean that gasoline specifications will have to be changed. That was the concensus at a technical symposium in Philadelphia this week. . . . p. 30

•

John W. Mecom's deep test in Plaquemines Parish, La., passed the halfway mark this week enroute to a possible 26,000-ft. depth. This would be a record if achieved. The operator will not drill that deep if shallower production is found. . . . p. 20

•

A national emergency could have serious effects on U.S. refineries if process chemical supplies were shut off abruptly. That's the principal finding of an industry study, made at the request of the Interior Dept. . . . p. 11

•

Union Oil Co. of California will be the second company to start drilling in the Spanish Sahara. Its initial test will be spudded soon along the Atlantic coast. . . . p. 38

•

Plastic foam can be used effectively to cut evaporation losses in crude storage tanks not fitted with floating roofs, according to an American Petroleum Institute study. It's not foolproof and extra supervision is required, the study committee reports. . . . p. 34

•

The superstation experiment of Standard Oil Co. (Ind.) is proving itself a success. The company reports that its new station in Vincennes, Ind., has regained all of the gallonage lost by closing eight smaller outlets. . . . p. 42

•

President Kennedy may urge retention of the fourth cent of the federal gasoline tax past its June 30 expiration date, Washington sources guess. The reason: to keep highway building up. . . . p. 17

Up to the Minute / SIGNIFICANT LATE NEWS

February 10, 1961

A proposal may be made to the Interior Dept. by a producer group that the Puget Sound area be made a "set aside" for Canadian crude. That is reported to have been one subject discussed between representatives of the Independent Petroleum Assn. of America and the Independent Petroleum Assn. of Canada. A spokesman for IPAA, it was learned, tentatively told its Canadian counterpart that it would not oppose the expansion of Canadian crude exports to Puget Sound refiners under the new Canadian oil policy to encourage increased use of Canadian oil (page 12).

The set-aside proposal—if it is made—would be designed as a move to curb the continued growth of Canadian imports in the U.S. Midwest. More than half of the exempt Canadian oil comes into the areas between the Upper Midwest and the Ohio Valley—the vast region that until recent years was solely a market for domestic crude.

•

Argentina, a long-time oil importer, is getting set to move into the world market. It has offered Uruguay 4.4-million bbl. of crude over the next three years for approximately $10-million, payable in dollars. Deliveries will start after complete pricing details are worked out.

•

The Foreign Petroleum Supply Committee will form a readiness subcommittee to study world-wide supply for the Defense Dept. The new group is expected to fill the role of the old Military Petroleum Advisory Board, which operated under Defense Dept. auspices, but which the Justice Dept. opposed on antitrust grounds. FPSC includes representatives from the Defense Dept., but it was created by Interior's Office of Oil & Gas.

•

Sunray Mid-Continent Oil Co. has made the first quintuple completion onshore—and the second for the industry. Its No. 21-E J. A. McFaddin, in Victoria County, Southwest Texas, flowed 1,225,000 cf/d of gas and 154 b/d of oil through perforations in five zones, ranging from 5,138 ft. to 6,364 ft.

•

A congressional fuels policy study could get under way by late spring. That was indicated this week by Rep. Wayne Aspinall (D., Colo.), chairman of the House Interior Committee, who said that he expects the expanded House Rules Committee to give an "early" hearing to resolutions to create a joint committee of Congress to study the need for a so-called national fuels policy. But the Senate may not move that fast. Sen. Clinton P. Anderson (D., N.M.), whose Interior Committee has a fuels study resolution pending, says he "isn't impressed" by the endorsements for such a study by more than 50 senators.

A congressional fuels study would probably delay consideration of a producer gas bill. That warning came this week from Joe T. Dickerson, executive vice-president of the Mid-Continent Oil & Gas Assn. The study, he said, could lead "to the very thing the coal industry started out seeking—end-use controls."

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Views Tha

Dear Sir:

In your article "February Crude Stocks May Hold Tight" [PW—Jan. 27'61,p10], daily crude runs of American Petrofina through its Texas plants in September and November, 1960, are stated incorrectly. The data shown for those months include only our Wichita Falls (Tex.) plant. Correct totals for both that plant and our Mt. Pleasant (Tex.) plant would show a reduction in runs during the last quarter of 1960 rather than an increase, i.e., September, 22,312 b/d, November, 19,337 b/d, and December, 17,447 b/d.

R. I. GALLAND
President
American Petrofina Co. of Texas

Dear Sir:

In your "Canada in 1961: Gas to Pace Growth" [PW—Jan.13'61,p24], I was embarrassed to read a misquote from my year-end statement: "It appears that a large number of oil men agree that the Canadian market should be dedicated to Canadian production."

The sentence, as issued by me, read: "It appears that a large number of oil men agree that the ONTARIO market should be dedicated to Canadian production."

The Canadian Petroleum Assn., for which I am spokesman, has not and does not take the stand inferred by the sentence as it appeared in PETROLEUM WEEK. The matter of supplying the Montreal market is one on which our membership is sharply divided. On the other hand, the association's members believe the Ontario market, already available to some Canadian crude, can be expanded to the benefit of all.

It is my sincere hope that PETROLEUM WEEK will see fit to correct any incorrect impression that may exist among our members who are subscribers to your excellent magazine.

JOHN W. PROCTOR
General manager
Canadian Petroleum Assn.

Dear Sir:

I have been surprised in recent months at some of the proposed methods for increasing the consumption of petroleum products. For example, at the recent American Petroleum Institute meeting in Chicago, it was seriously proposed that the public campaign to spur the use of home heating oil should revolve around the

Make News

use of words like pure, clean, etc., in building a more favorable image.

Why anyone should care about these things was not made plain. Gas has no advantages over oil with regard to smell, purity, danger, etc. But the convenience of gas over oil has been so overwhelming that, unless the price of using home heating oils is sharply reduced, it is inconceivable that this campaign can have any practical success.

The more recent campaign to motivate more driving is also poorly based. For one thing, there seems to be a correlation between the amount of driving one does and the possibility of becoming involved in accidents. Second, the lack of time for extended long trips, together with the increasing economy of air travel to distant points, means that this campaign involves a great deal of pointless propaganda.

For example, last year I drove from northern Indiana to Florida on a vacation trip. We had never been to Florida before and were interested in exploring along the way. We had a fine trip, but we will never drive to Florida again. We will fly down and rent a car.

What the petroleum industry should do is exert its influence (and perhaps establish subsidiaries to make cars available) to make car rental so cheap that vacation travelers will do much more auto traveling after they have arrived at a distant vacation spot.

Another subject that deserves more forthright discussion is the subject of depletion allowances. I do not question the need for depletion in the tax laws.

But I have always had the impression that a new oil well is so lucrative that the search for new oil would continue even in the absence of depletion. If not, the implication for our system of risk and reward is ominous.

JACK LINSK
Highland, Indiana

PETROLEUM WEEK *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

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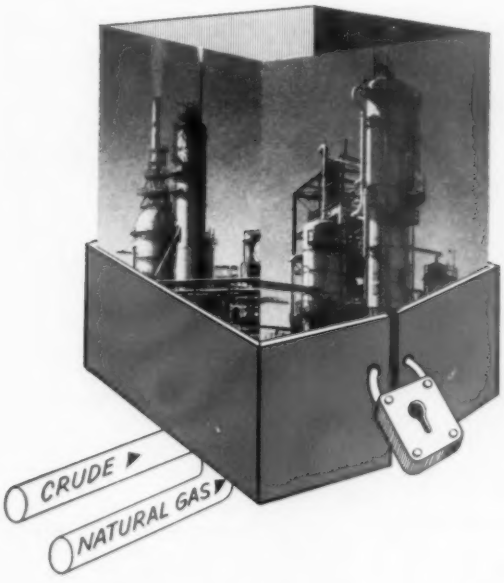

Refineries Would Be Hard Pressed by an Emergency Curb on Process Chemicals

U.S. refineries might be hard put if a national emergency should force them to rely solely on in-plant inventories of process chemicals and maintenance supplies for a long period.

That's the principal finding of a special study undertaken by a committee of the National Petroleum Council at the request of the government as a preparedness measure.

The study was requested in the fall of 1959 by then Under Secretary of the Interior Elmer F. Bennett. It was made public this week at the council's first meeting of 1961.

A shut-off of process chemicals would limit much of the industry's refining capacity to less than 13 weeks of operation.

Output of some products, such as motor and jet fuels, would be cut to as little as two to four weeks.

The table (below) shows how much of the industry would be affected by shutoffs of maintenance supplies and process chemicals.

The council estimated that if process chemicals were curtailed abruptly, the equivalent days of full production

Cutting Off Materials, Chemicals Would Hurt Processors

Percentage of total capacity limited to less than 13 weeks' operations . . .

In Refineries:

Products	By Shortage of Maintenance Supplies	By Shortage of Process Chemicals
Liquefied gases	10.6%	83.2%
Aviation gasoline	13.3	87.9
Motor Gasoline—Reg.	6.7	97.4
Motor Gasoline—Prem.	6.5	98.4
Motor Gasoline—Other	1.5	92.4
Jet Fuel—JP-4	3.6	67.6
Jet Fuel—JP-5	0.0	71.1
Jet Fuel—Other	4.0	81.1
Naphtha	3.1	66.7
Kerosine	4.2	69.7
Diesel Fuel	5.7	64.3
Distillate Fuel	6.3	73.3
Residual Fuel	5.7	47.4
Asphalt	5.6	44.1
Lube Oils	4.7	93.2
Waxes	1.6	78.7
Greases	4.5	79.6
Coke	5.2	52.3
Others	11.1	76.5

In Natural Gasoline Plants:

Products	By Shortage of Maintenance Supplies	By Shortage of Process Chemicals
Propane	39.3%	59.7%
Normal Butane	39.0	64.5
Isobutane	39.4	60.0
Mixed Butanes	42.2	52.3
Isopentane	49.9	67.1
12-lb. Gasoline	40.8	52.5
14-lb. Gasoline	47.4	64.1
18-lb. Gasoline	17.2	56.8
26-lb. Gasoline	32.2	60.0
Heavier Gasoline	30.5	32.2
Motor Gasoline	13.6	81.3
Condensate	26.1	65.1
Kerosine	65.2	35.0
Sulfur	35.9	52.9
Mixed LPG	38.1	76.2
Others	50.5	48.4

for the limited plants for various products would be as follows:

Premium gasoline, 14 days; regular motor gasoline, 15 days; avgas, 17 days; kerosine, 28 days; JP-4 jet fuel, 29 days; JP-5 jet fuel, 21 days; distillate fuel oil, 31 days; residual fuel oil, 31 days; residual fuel oil, 31 days; lubricating oils, 26 days.

The process chemicals are those used in normal refinery operations—sulfuric acid, tetraethyl lead, cracking catalysts, and sodium hydroxide, among others.

A cut-off in maintenance supplies would pose no serious problems. Most of the refineries could operate well beyond the 13-week period, if necessary.

In the case of only one product—avgas—would there be any difficulty—and this would affect only 13.3% of the total refining capacity.

Natural gasoline plants wouldn't be distressed nearly as much as conventional refineries by any emergency curtailment of chemicals.

The percentages are substantial, but well below those of refineries. In addition, product output would be more extensive, with most in a 30- to 40-day range.

A curtailment of maintenance supplies, however, would hit natural gasoline plants harder than refineries. The reason is that smaller inventories are kept in most natural gasoline plants and, for the most part, the plants do not have shop facilities.

Four major assumptions are involved in the projections, according to the study committee's chairman, Everett F. Wells, president of Ashland Oil & Refining Co. These were:

- Plants would continue to have normal access to crude and natural gas supplies during any emergency;
- There would be no turnarounds during the emergency period;
- Market outlets would be available for the products manufactured;
- Outside sources of electric power, water supplies, and other utilities would not be disrupted.

The projections were based on reports from refineries and natural gasoline plants representing more than 98% of total U.S. capacity.

Questionnaires were sent to 450 refining companies and natural gasoline plant operators. Of these, 392 replied. Data from 92 companies was ruled out, however, because the replies were not applicable.

The data was compiled and analyzed by a technical subcommittee headed by Roland A. Whealy, vice-president of Ashland Oil & Refining.

Canada Passes Up Montreal

- **Government sets crude and gas liquids production target of 800,000 b/d by 1963, which would require a doubling of present export volume.**
- **If the target is not reached, a review of the nation's import policy could be the next step.**

Canada's national oil policy apparently is based largely on a hope and a prayer that exports to the U.S. can be doubled by 1963 without breaking the camel's back.

This seems to be about the best way to appraise the policy unveiled last week by George Hees, Minister of Trade & Commerce, in the House of Commons in Ottawa.

Canada currently is exporting around 120,000 b/d of crude to the U.S. Pacific Northwest and the Upper Midwest.

If the Canadian industry is to achieve the targets set by Hees, these exports could run approximately 275,000 b/d to 300,000 b/d over the next three years.

This could cause problems for the American industry, which already has more crude and products than it knows what to do with.

And it could raise the question of how much Canadian oil the U.S. can absorb without being hurt or dissatisfied. Canadian oil currently is exempted from U.S. import controls.

Initial reaction in this country was mild, but a note of caution was evidenced in official Washington circles.

One large producer in the Southwest conceded that the Canadian industry needs a shot in the arm, but said "we're not worried too much" about expansion of exports into the U.S.

He expressed belief that the Kennedy Administration could "slap a few restrictions on the importation of Canadian oil" if it gets out of hand.

Secretary of the Interior Stewart L. Udall commented that the increased Canadian exports, properly timed, shouldn't materially affect oil production in this country.

But, he added, if the Canadian program has marked or abrupt effects on the U.S. industry, a review of Canada's exempt status would be the next order of business.

Canada's new production goal is 800,000 b/d of crude and gas liquids by 1963. This, in effect, is a two-year moratorium on the Borden Commission recommendations of 1959.

The Borden Report called for Canadian production to reach an average of 700,000 b/d by the end of 1960, and suggested that an Alberta-to-Montreal pipeline be considered by the government, together with import controls, if it didn't make it.

During 1960, Canadian production averaged 550,000 b/d—150,000 b/d short of the Borden target. At present, it is running about 600,000 b/d.

Hees' new target is 640,000 b/d for 1961, with a level of not less than 625,000 b/d by midyear. It is to be stepped up gradually so that it will reach 800,000 b/d by 1963.

This, Hees said, will be as high as the figure which would be achieved if the Montreal pipeline were to be constructed.

To reach 800,000 b/d by 1963, Canada's plan is to supply the entire

More of Oil's 1960 Earnings

(thousands of dollars)

Company	1960 Net Income	1959 Net Income	% Change
Atlantic	$ 46,566	$ 30,174	+54.3%
Indiana Standard	144,750	139,597	+ 3.7
Socony Mobil	182,500	164,000	+11.3
Sun Oil	49,273	42,844	+15.0
Tennessee Gas	61,589	52,367	+17.6

Pipeline for Plan to Push Exports to U.S.

Ontario market with domestic crude and products, and to boost exports sharply.

Part of the Ontario market currently is supplied from Montreal, where Venezuelan and Middle East crudes are processed in the refineries. This amounts to around 50,000 b/d or one fourth of the projected increase of 200,000 b/d.

This will be a gradual displacement, Hees said, and, in addition, refinery capacity in Ontario will have to be expanded to handle a greater volume.

Although the details were not spelled out, it is presumed that Hees' plan will mean reversing the flow of products in the pipeline from Montreal to Toronto.

Thus, products refined in the Toronto area from Canadian crude delivered by the Interprovincial Pipeline will replace products refined in Montreal from foreign crudes.

Most of Hees' hopes, however, are pinned to the expansion of export markets. This is a considerable volume —about 150,000 b/d, and would be moved into the Puget Sound area, and the midwestern states now served by pipeline connections to Canada.

The whole program is purely voluntary, but the government implied that a big stick might be wielded later if it falls short of its goals.

Hees said importers in eastern Canada, effective immediately, will be required to make monthly reports.

If the reports suggest that voluntary efforts are not producing anticipated results, he said, the government will take whatever steps are required—including the possibility of import controls.

Most Canadians reacted favorably to the ambitious program. Among the comments:

- A. G. Bailey, president of Independent Petroleum Assn. of Canada: "A major step in the right direction to insure that Canada will become self-sufficient in balance of petroleum."
- A. O. Detmar, president, Mobil Oil Co. of Canada: "The government's oil policy implies its confidence in the industry to manage itself with a minimum of government regulation, and it is clearly up to the industry to demonstrate that ability."
- John Getwood, president, Pacific Petroleums, Ltd.: "The suggested increases in production will provide an economic stimulus to the entire Western Canadian oil industry."
- E. D. Loughney, president, British American Oil Co.: "We believe that the target level of 800,000 b/d by 1963 is a realistic one [but] the achievement of 640,000 b/d for 1961 presents a more difficult problem."
- A. F. Down, president, BP Canada, Ltd.: "The national oil policy is a reasonable one, and we welcome the government's desire to achieve the national objectives without disturbance of normal trade patterns."
- John W. Proctor, general manager, Canadian Petroleum Assn.: "We sincerely hope the production targets can be met, thus eliminating the need for further action by government agencies."
- E. C. Manning, Premier of Alberta: "This is a policy decision which should have been made two years ago."

On the more cautious side, however, was the comment of R. H. Bullied, president of the Canadian Assn. of Oilwell Drilling Contractors:

"Early optimism may not be justified if the real measure of the success of our national oil policy must be measured in the terms of the manner in which the United States and the major oil companies of that country resolve the newly created problems which they will face."

And A. N. Lilley, president of Texaco Canada, Ltd., noted that there would be some idle refining capacity in Montreal until demand in that section of the country catches up.

Meanwhile, W. Harold Rea, president of Canadian Oil Cos., Ltd., said U.S. imports of Canadian oil could be doubled if they were in line with U.S. investments there.

He noted that the U.S. "has a big stake in our oil and gas industry, holding a massive 74% over-all control." If the share of U.S. purchases from Canada were in line with her foreign investments in oil, he went on, Canada could look for oil sales to the U.S. of some 240,000 b/d.

"The big question then," he told the Canadian Club of Toronto, "is why don't the oil companies in the U.S. import more oil from Canada?

"The answer is simple. American oil companies must look at all their foreign sources of supply, then import the oil which is to their best economic advantage at the time."

Tennessee Gas Expands Reserves

Tennessee Gas Transmission Co. has upped its natural gas reserves over 1-trillion cu. ft. by purchase of Pan American Petroleum Corp.'s leases in Bastian Bay, Plaquemines Parish, La.

The sale involved ten leases, with 11 gas wells and 13 oils wells, in which Pan American held 100% working interest, and three joint leases, with one oil well and two gas wells.

Under the purchase contract, announced by the two firms last week, consideration for Pan American's net interest in the properties was in excess of $150-million, including a cash down payment, and noninterest-bearing notes payable over an 18-year period.

Tennessee Gas will operate and develop the field.

The large addition to reserves will make TGT's operations more flexible: In winter, when customers' needs reach a peak, gas deliveries can be increased.

Gas from the Bastian Bay leases is already moving through newly completed field connections.

The gas is being fed into the Tennessee Gas pipeline system, which crosses the Bastian Bay area.

Syndicate Readies Honolulu Bid

A four-company syndicate is ready to enter the Honolulu Oil Co. sweepstakes with a sealed bid, according to Reese H. Taylor, chairman of Union Oil Co. of California.

Honolulu, primarily a crude producer, has been up for grabs for some time; its assets are rated at $97-million. It recently extended the deadline for cash offers from Jan. 15 to Feb. 15.

Taylor said the syndicate is composed of his own firm, Signal Oil & Gas Co., Superior Oil Co., and Ohio Oil Co.

He said the question of financing the purchase, if it is accepted, poses no major problems. He added, however, that the four companies would not necessarily be equal or joint owners or operators of Honolulu.

Multiples Are Reducing Total Drilling

The sharp rise in multiple completions is making the total number of holes drilled an antiquated yardstick for measuring drilling activity.

Multiples are beginning to put a significant dent in the number of holes that are drilled in the U.S. each year.

In Texas alone last year, operators drilled 1,681 duals, 123 triples, 11 quadruples, and one sextuple. Total pay zones tapped added up to 3,781.

The net effect of the multiple drilling was to decrease the total number of tests drilled in the state in 1960 by 1,965.

Texas Railroad Commission Districts	Holes Drilled	Duals	Approved for completion: Triples	Quadruples	Sextuples	Total Pay Zones
1—Southwest	95	93	2	....	....	192
2—Southwest	316	299	15	1	1	653
3—Gulf Coast	223	212	8	3	....	460
4—Southwest	335	289	39	7	....	723
5—East Central	12	11	1	....	....	25
6—East Texas	104	91	13	....	....	221
7B—West Central	49	47	2	....	....	100
7C—West Central	24	20	4	....	....	52
8—West Texas	442	411	31	....	....	915
9—North Texas	141	136	5	....	....	287
10—Panhandle	75	72	3	....	....	153
TOTALS	**1,816**	1,681	123	11	1	3,781

Drilling in the U.S. in 1960 would have totaled 48,715 holes if Texas' multiples had been conventionally drilled as singles.

U.S. drilling amounted to 46,750 holes in 1960. Adding Texas' 1,816 multiples as singles would have brought the nation's total up to 48,715—or 4.2% above the actual number of holes drilled.

The trend toward multiples is hurting the drilling contractor—not the equipment supplier.

Equipment costs run high compared with singles, because of the large amount of special equipment needed to complete a multiple well.

Here's how the average cost of a multiple well stacks up with that of a single completion: sextuple, $75,314; conventional triple (with tubing) $72,673; conventional dual, $52,637; conventional single completion, $50,684.

Gill Oil Co., which drilled Oklahoma's first quadruple test, estimated that it cost $30,000, compared with $22,000 to $23,000 for a dual completion in the same area (the Healdton field in Jefferson County).

Udall Will Set Interior's Oil Policy

Interior Secretary Stewart L. Udall made it clear this week that he will be the man to see on the department's oil policies, and he challenged the industry to help him form them.

A sign of the active role he plans was his designation of himself as co-chairman for government of the National Petroleum Council. Capt. Matthew V. Carson, Jr., Director of the Office of Oil & Gas, previously held the post.

Udall told NPC members that Interior's policy-making role in oil will grow, and said the goal is "machinery that will permit government to carry out effectively its balance-wheel function without usurping" the proper functions of business.

Udall is said to have been disturbed by the reluctance of some in the oil industry whom he has approached to serve the Administration.

He said he doesn't believe the "myth" that oil men lack public spirit, but he added, "The time has come for some of the people in your ranks to redeem the oil industry" by taking policy-making roles in government.

The group that will advise and educate Udall on oil problems has largely been formed.

J. R. Parten, former president of Woodley Petroleum Co., was made an oil consultant on an informal basis. Parten has advised other Democratic Interior Secretaries, and served under the late Harold L. Ickes in the Petroleum Administration for War.

The role of Assistant Secretary for Mineral Resources, which is to go to John M. Kelly of New Mexico, owner of Elk Oil Co. and former state geologist, will be changed somewhat.

Because of Kelly's background as a producer, and the possibility of charges of conflict of interest, Udall decided not to give him a seat on the Oil Import Appeals Board. Kelly's predecessor, Royce A. Hardy, headed the board.

Carson and Oil Imports Administrator Lawrence J. O'Connor are continuing to serve on a temporary basis. Udall hasn't decided whether to seek replacements.

In addition, Udall expects to get occasional advice on oil matters from W. W. Keeler, executive vice-president of Phillips Petroleum Co.

NEXT WEEK *Be Sure to Read:*

OFFSHORE ACTIVITY is Stepping Up . . .

This year could be the best yet for offshore operations, as measured by the probable pace of drilling activity. Last year's lease sales in the Gulf of Mexico set the stage for expanded activity there. And the pace also will quicken on the West Coast. The best indication of what's ahead is the tempo of business in the years that fabricate special structures and equipment.

What's New / IN THE INDUSTRY

The Oil, Chemical & Atomic Workers Union is already setting its sights on a new bargaining program. The union has scheduled a series of regional meetings in April to sound out its membership's views on another round of bargaining. Most OCAW contracts won't be open for negotiation until the end of 1960.

•

California had a bid opening without bids last week on the first offshore parcel to be offered since July, 1958. Frank Hortig, executive officer of the State Lands Commission, said that lack of interest in Parcel 1, a 4,250-acre tract off Santa Barbara County, may have been due to the parcel's proximity to the Pacific missile range and to shipping lanes that might make development difficult.

•

Natural gas producers are being urged to participate in the forthcoming Federal Power Commission area price hearings. D. L. Connelly, president of the Mid-Continent Oil & Gas Assn., appealed to producers, regardless of the size of their operations, to take part in the hearings. He pointed out that it was also vitally important for them to join in the prehearing conferences, the first of which is slated to be held in Midland, Tex., on Mar. 6.

•

Three ways to arrest declining oil and gas production revenues in Texas have been proposed by the Texas Independent Producers & Royalty Owners Assn. The association has urged the Texas Legislature (1) to encourage the regaining of lost crude markets, (2) to campaign against lower prices, and (3) to support gas decontrol.

TIPRO says the petroleum industry can no longer meet the rising cost of the state government. It points out that taxes on oil and gas, which have provided the backbone of state tax revenues, reached $212-million in fiscal 1960, representing 17.7% of total government cost.

•

Lone Star Steel Co. is increasing production to meet a pickup in demand for oil country tubular goods and line pipe. The main factor in the better outlook, says E. B. Germany, president, is a continuation of the oil industry's drilling and exploration program on 1960 levels. "But in 1960," he adds, "inventories were much higher than they are today. As a result of reduced inventories, the oil-producing people are buying as they go along instead of drawing from inventories."

•

An all-out campaign to stimulate pleasure driving through industry-sponsored advertising has entered the research stage. API's Travel Development Committee has been given the green light to design and test advertisements to be used in the campaign. First step is to measure the relative effectiveness of the many appeals that may stimulate driving.

•

A shutdown of Wyoming's fast-growing Patrick Draw area has been averted for the time being. State Land Commissioner Kenneth Bell says proposed construction of a $3-million gas plant eliminates the shutdown threat "if plans go through." Stearns-Rogers Construction Co., Denver, has contracted to build the plant for Union Pacific R. R. Co., approximately 30 mi. west of Wamsutter (PW—Jan.27'61,p17).

THE RACE BELONGS TO THE SWIFT

Events can move like greased lightning in the oil and gas industry . . . and the bank giving maximum service is the bank with the experience, knowledge, manpower and resources to move with them. When an oil and gas man brings his financing requirements to Republic, time-and-money consuming delays are cut to the bone. Republic's petroleum engineers are in the field, making professional on-the-spot evaluations . . . therefore, action is swift!

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Next time, talk to Republic . . . a leader in the field of oil and gas financing. We're here to serve you!

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FRACTURING SUCCESS *may depend on your selection of the* RIGHT PROPPING AGENT

FIRST...

AND FOREMOST

IN FORMATION

FRACTURING

These three photomicrographs represent the business end of a fracturing job. These particles have to keep the fracture open when the treating pressure is released. Enlarged several times, they may even look alike . . . but they don't *act* alike! Knowing which one will work *best* in your well may mean the difference in the success of the treatment.

On top of the heap is a grain of Ottawa Sand, the most popular type of propping agent used today in formation fracturing. In many formations, sand grains will adequately prop the fracture to permit increased reservoir drainage. However, formation characteristics may be such that sand grains will crush and shatter or embed, allowing the fracture to "heal" . . . what then?

The answer to these conditions frequently lies with the other two propping agents shown above. Aluminum pellets, or processed walnut hulls will not normally shatter under extreme loading. Instead, they tend to deform to a wafer-like shape, still providing propping support for the opened fracture.

Your Halliburton man will be glad to assist in having a core sample from your well tested so you may select the best propping agent for a particular formation. See him before planning your next fracturing treatment.

FRACTURING SERVICES

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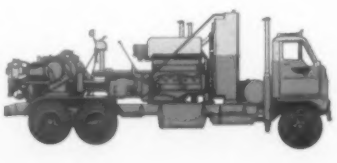


Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
February 10, 1961

The first hurdles for the Federal Power Commission's area-pricing plan for gas producers are now set up. They are two court cases in the U.S. Court of Appeals for the District of Columbia. In one case, Wisconsin has challenged FPC's order establishing price ceilings for various producing areas; in the other, Wisconsin, California, and eastern seaboard distributors have attacked the commission's Phillips decision, rejecting cost-of-service regulation, and dismissing the investigation into Phillips' rates.

Industry lawyers are divided in assessing area-pricing's court prospects. Some say none of the petitioners has been injured yet by either action of FPC, and they predict that the court will let area-pricing stand. Others say the commission exceeded its authority in both moves, and say the court won't ratify area-pricing until Congress specifically authorizes the commission to try it.

•

The lack of clear standards for administering area-pricing is a generally conceded weakness. The conference on Permian Basin prices in Midland, Tex., next month, is aimed at filling the void, but it's only the first step in a lengthy process. FPC Examiner Edward B. March says he'll set no ground rules for the conference, but will confine it to an exploration of the kind of evidence to be offered in later formal hearings. He hopes that producers will get together and make a limited number of presentations.

Some in the industry are cheered by the opinions of the two newly designated FPC members that delay is the commission's worst ill. If Joseph C. Swidler and Howard Morgan take this view, it is reasoned, they will be reluctant to steer the commission back into the complexities of utility-type regulation of producers.

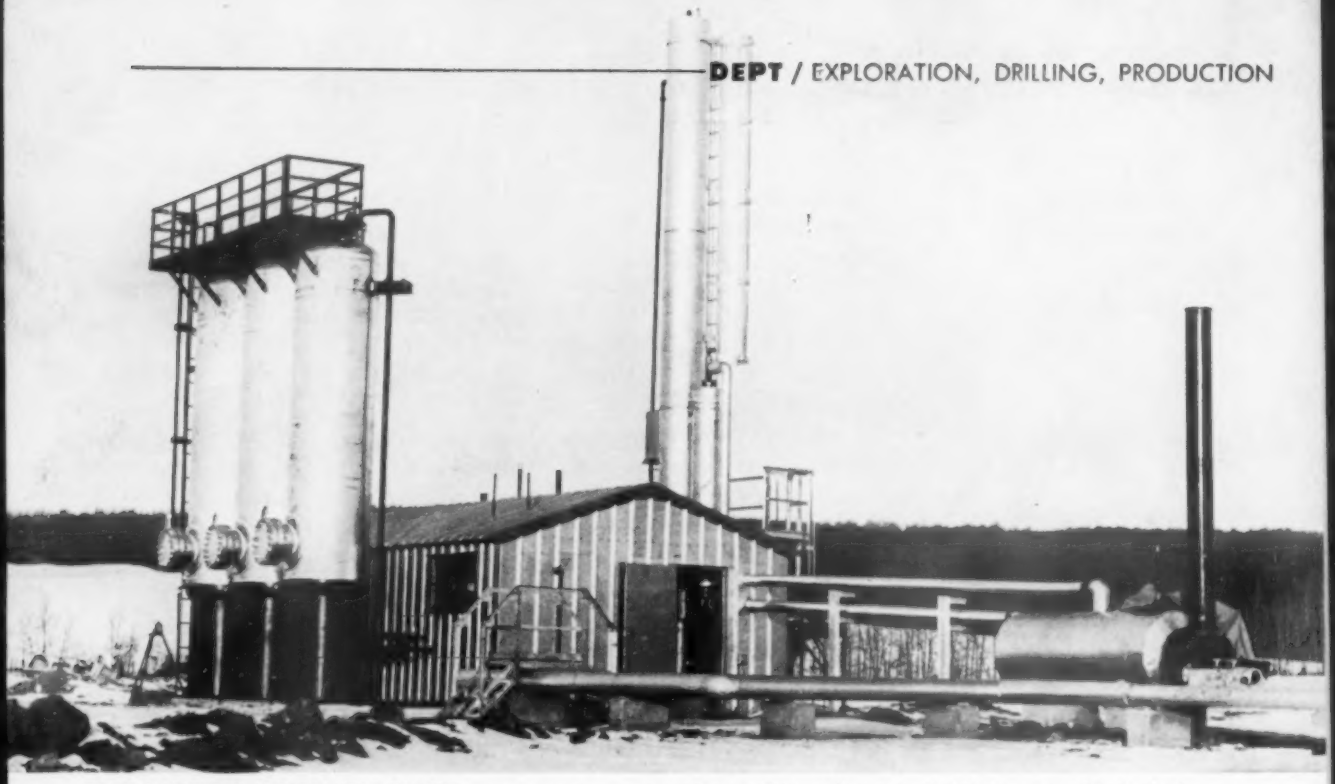
•

Early speculation points to continuation of motor fuel taxes at the present 4¢-a-gal. level. President Kennedy hasn't been specific, and there's confusion in the Administration about his exact intentions. When he hinted support for the 4.5¢ level asked by Eisenhower, Congress grumbled. But recession pressure to keep up highway building may bring a compromise: another year or two of the "temporary" fourth cent, now due to expire June 30.

•

Louisiana legislators hope they've got Texas firmly in their corner on the offshore lands issue. The U.S. Supreme Court weakened the alliance of Gulf Coast states in Congress by giving Texas and Florida three leagues (10.5 mi.) into the Gulf, but holding Louisiana, Mississippi, and Alabama to 3 mi. Louisiana lost most in oil and gas revenue, but all three states are asking legislation to give them 10.5 mi.

Most Louisiana representatives stuck with Speaker Sam Rayburn in the fight to liberalize the House Rules Committee. The move was important to Kennedy's legislative program, and Rayburn won by only five votes. Louisiana's delegation split five-to-three for Rayburn, while most southerners bolted. "Rayburn used tidelands on us like a club," a Louisianian says, "and we don't expect to be let down."



THIS LARGELY AUTOMATIC PLANT was put on stream recently near Gilby, Alberta, by British American Oil Co. Such . . .

'Compact' Gas Plants A Hit in Alberta

Small, package-type gas processing plants, custom-tailored where required, are catching on strong in Alberta.

There is a growing need for these small plants, despite the overshadowing existence of big multimillion-dollar plants used for sour gas fields and for fields with commercially recoverable amounts of propane and butane.

The reason: The package units fill important roles in handling relatively small amounts of lean gases that still need processing to meet hydrocarbon dewpoint specifications of gas sales contracts.

Growing export demand for gas is the impetus for the sudden surge in building.

None of the plants was in existence in Alberta before the fall of 1958, when the first was installed in the South Cessford field by Canex Gas Ltd.

Last year, however, construction of these package-type units hit a new high. This included three at Cessford, one by Cankee Gas Co., one by Tidal Petroleum Corp. and Canadian Chieftain Petroleums Ltd., and one by Standard Oil Co. of California; two at Gilby, one by British American Oil Co. and one by Texaco Exploration Co.; one at Three Hills Creek by Honolulu Oil Corp.; one each at Countess and Enchant by Sun Oil Co.; one at Princess by Amurex Oil Co.; and one at Sedalia by Canex.

Capacities of the plants range from 5-million cf/d at Enchant to 22-million cf/d at Cessford, with cost estimates for projects ranging from $37,000 to $247,000.

The combined total investment in these projects amounts to over $1-million, and the combined capacities exceed 120-million cf/d.

Although the plants have been described in a general manner as prefab, they are in most respects custom-tailored to fit the particular application.

British American Oil Co. points out that the units "must be designed to fit the gas analysis of the well fluid they will be handling."

The company adds: "The mode of construction is no different from any other plant in that the vessels, skids, and control members are fabricated off the site and delivered flanged to mount in the system."

A conservation board engineer comments that "flow diagrams are very similar for all of these plants. Because there is very little shrinkage, the difference between plant feed and residue gas is quite small. The only recoveries made appear generally to be an average of approximately 2 bbl. of condensate or natural gasoline per 1-million cu. ft. All of the plants are generally called dry desiccant plants."

On the basis of the number of such plants already established, plus those either in sight or forecast, Alberta likely will have at least 30 small plants by the end of the year.

The role being assigned to these plants was highlighted at the end of 1960 by British American, which predicted that 20 or more plants will have to be built before the end of 1961.

The company said the plants, "which various companies" will have to build in Western Canada," would be needed as new fields are brought into production to meet growing export demands.

E. D. Loughney, president, said gas sales are expected to increase some 80% by the end of 1961, when all gas authorized for export begins to move.

Most of the new plants forecast for 1961 would be located in the Plains

area of Alberta, rather than in the Foothills or near Foothills. Fields in the latter regions usually contain hydrogen sulfide and commercially recoverable amounts of propane and butane.

The small gas processing plants generally have no facilities for recovering butane or propane, which lowers their initial cost.

A British American spokesman, in answering questions on advantages of the Gilby or similar-type plants, made this observation:

"The savings realized by this plant are possible because no provisions are made to recover butane or propane. The content of Gilby gas did not warrant additional expense for such processing. In addition, the gas stream contained no H_2S, which greatly simplified the process requirements."

Some operators also cite low operating costs and easy construction as other advantages.

British American says: "The time required for construction of this type of plant is approximately one-quarter to one-sixth of the time necessary to construct a refrigeration-type plant. One additional economical feature is the regeneration of the desiccant bed."

In addition, says a spokesman for California Standard, they require little attention, being largely automatic. And this is "extra good" for remote locations. Shop fabrication is another advantage, he adds.

A Canex spokesman comments: "It's a standard type of package unit we have, shop fabricated in Tulsa. We've operated it continously. It's very satisfactory from an operating standpoint . . . Costs less than ½¢ per 1,000 cu. ft. to operate."

A big and growing future is predicted for the gas plants by British American Oil Co., for one.

In addition, a spokesman for Amurex Oil Co. says that his firm will build more such plants if and when similar types of gas become available under similar circumstances. And a Canadian Pacific Oil & Gas Ltd. spokesman said it was possible his company might build other units next year.

Several new units are now being built or have been completed in recent months:

• **Canex Gas Ltd. has a new unit in the Wood River area east of Ponoka,** bringing its total number of plants to three. This plant will supply 5-million cf/d of sales to Trans-Canada. A plant of the same capacity was put in operation by Canex at Sedalia, Atla., last November. It cost an estimated $40,000.

The Wood River plant was estimated to cost between $40,000 and $50,000. Both were purchased from National Tank Co.

Estimated costs of Canex's pioneer plant are $120,000, and it has a capacity of some 22-million cf/d of sales gas.

• **Imperial Oil Ltd. is setting up a plant at Chigwell.** It will have an 8-million cf/d capacity, and was manufactured by Canadian Equipment Sales & Services Co. (Cessco).

• **Honolulu Oil Corp. put a plant on stream at Three Hills Creek in January.** It has a 5-million cf/d capacity, and cost $107,000. It was made by Parkersburg Rig & Reel Co.

• **Texaco Exploration Co. started one at Gilby in December.** Capacity of the unit will be 17-million cf/d, and will cost an estimated $154,000. It was manufactured by National Tank Co.

• **Standard Oil Co. of California has a new plant at North Cessford, and was set in January to install still another at Gilby.**

The North Cessford (Sunnynook) unit was installed to supply 12-million cf/d of sales gas to Trans-Canada. It cost roughly $87,000 and was made by Parkersburg and sold through Cessco. The Gilby plant was manufactured by Black, Sivalls & Bryson, and will supply about 15-million cf/d to Trans-Canada Pipe Lines, Ltd.

Stancal already has another unit in the Princess field. It has one of the earliest in Alberta, going into operation in January, 1959.

A company spokesman pointed out that the plant required a sweetening section for acid gas removal, and this section was not part of the package deal. Damar Systems Ltd. had the contract for the package unit facilities, and the sweetening section was handled by Arnett & Burgess Oilfield Construction Ltd.

Plant capacity is 12-million cf/d, and the total initial cost for the project was $417,000. That included $115,000 for the gas gathering system, and the package unit cost of an estimated $85,000.

One of the smallest plants was put in operation in January, 1959, by Amurex Oil Co. in the Princess field.

The $28,330 plant was designed and constructed by W. A. McBean & Associates Ltd., Calgary, to process gas from two wells. Contact quantities were for 1.2-million cf/d and 1.6-million cf/d (peak). It was estimated that 98.9% of the gas processed would go to sales gas.

Among other companies that have successfully operating package units are Canadian Pacific Oil & Gas Ltd. and Tennessee Gas & Oil Co., a division of Tennessee Gas Transmission Co.

In both cases the plants were manufactured by Parkersburg, and have been in operation since November, 1959.

The CPOG plant is located at Hussar in the central plains area. The plant has a capacity of 20-million cf/d and cost $110,000.

Tennessee Gas's plant was built in the Rosedale field at an estimated cost of $115,000. Last year, the average operating cost for the plant and gathering system was an estimated $1,240 a month.

Retroactive Allowable Sought

The Louisiana Conservation Commission is studying an operators' request for retroactive application of its recent order granting a bonus allowable for fields developed on wider-than-usual spacing patterns.

The commission's order, 29-H, was issued last fall, but was made effective as of May 24, 1960.

It established a policy of recognizing conservation practices based on wider spacing of wells in new pools (PW—Nov.25'60,p15).

Although the commission has granted several bonuses to fields developed since the order's effective date, it has not yet exercised its discretionary right to make the order retroactive to May 24 for fields that were already partially developed by that date.

Many operators had sought such an order, on the ground that it would promote sounder, more economic development of oil and gas in the state.

The request now before the commission was made by Tidewater Oil Co. and others, to cover oil production within a unit drilled on an 80-acre spacing pattern in the Opelousas field.

The petitioners feel that, under the order's formula, they would be entitled to an allowable of 130 b/d per well, instead of the basic 90 b/d for comparable wells not drilled on the wider spacing pattern.

The Opelousas field wells produce primarily from the Thompson member of the Frio Sand at approximately 9,100 ft., although there are other, less-productive zones.

The operators—Tidewater, Colorado

Oil & Gas Co., and Whitehall Oil Co.—chose to develop the field on an 80- acre pattern, even though the commission's order had not yet been issued on a statewide basis. Their hope in petitioning the commission is to obtain a temporary order, pending final determination of the Opelousas field's limits and producing characteristics.

"The unit was based on the best geological knowledge available . . . not on artificial lines," says a representative of one of the operators.

The new pool is a fault trap adjacent to older gas production. It has been defined on three sides, but will be extended into townsite locations within Opelousas itself on the fourth side.

The fault was located by geophysics. The possibility of production south of the fault evidently was passed up during earlier exploratory and development efforts, which resulted in gas production on the north side of the fault and the formation of the Rozas Sand Unit, operated by Mobil Oil Co.

Additional gas production was found subsequently, to the east of the Rozas Unit.

The new production is closed by the fault on the north, and is believed to be defined by dry holes and location of the water level on the east and south.

Currently, there are 22 producers in the field, and probably four or five more holes will be drilled to complete the unit.

The Opelousas townsite development is not included in the application now before the commission.

Townsite leasing is proceeding now, but the manner and method of development has not yet been worked out.

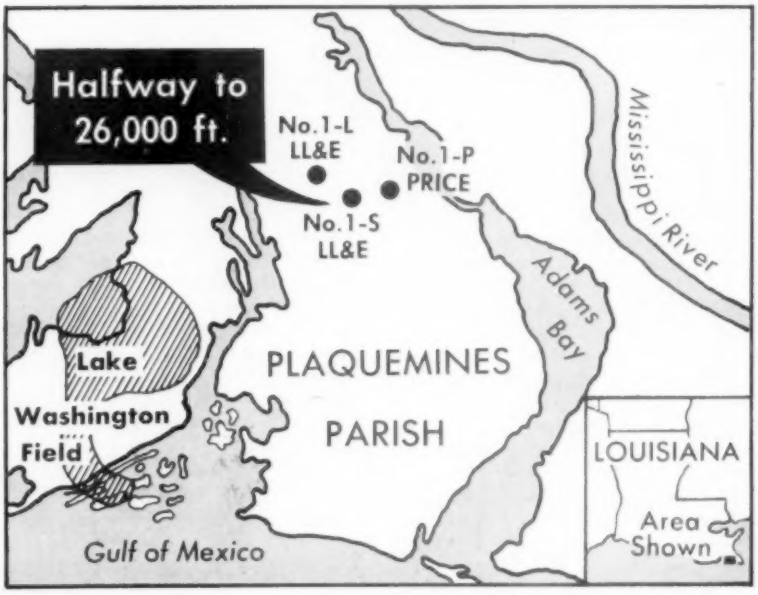
Mecom Deep Hole Passes 13,000 Ft.

The half-way mark was reached this week at John W. Mecom's projected 26,000-ft. super-deep test in Plaquemines Parish, South Louisiana.

As of last report, the hole was being drilled below 13,023 ft.

U.S. Oil of Louisiana, Inc., a Mecom subsidiary, is operator. Mobil Oil Co. has a 30% interest in the test. The test is 8,000 ft southeast of Richardson & Bass et al No. 1-L LL&E, which set a then world's depth record of 22,570 ft. in 1955, and 1 mi. west of the same group's No. 1-P Price, now the world's deepest producing well at below 19,000 ft. The No. 1-L LL&E produced from deeper depths, but right now has collapsed pipe in the hole and is scheduled for reworking after the current test is completed.

The present world's depth record of 25,340 ft. was set in 1958 by Phillips Petroleum Co. No. 1-EE University, Pecos County, West Texas (PW—Feb.13'59,p21).



Whether the current super-deep test—No. 1-S LL&E—is carried to 26,000 ft. will depend primarily on what the operator finds in drilling.

A Mecom spokesman stresses that the company is not aiming at 26,000 ft. just to break the depth record but to get some production. If such can be found higher up the hole, the company will not go any deeper than it has to.

The point to remember, however, is that all the advance planning, equipment, and material necessary to go to 26,000 ft., and even deeper, is on hand.

U.S. Oil is using the same rig—No. 25—used in drilling the No. 1-L LL&E and No. 1-P Price.

But the company is witholding details on specific equipment, and is drilling the hole tight. This has been motivated more by a desire to insure efficient, unhampered operations than to withhold information.

Drilling has progressed at a normal rate so far, with no particular problems encountered. Casing has been set to 2,982 ft.

Hole is being made at the rate of roughly 100 ft. daily.

So far, 24-in. conductor casing was set to 200 ft., and a string of 16-in. casing set to 2,982 ft.

Operators expect to set a string of 10¾-in. casing when the 13,500-ft. mark is reached. A spokesman for the company says the latter string will be set somewhere between 13,000 ft. and 13,500 ft.

Should the hole reach 20,000 ft., 8⅝-in. liner will be run. If the company drills past that point, it probably will go to 6⅝-in. liner, or something even smaller.

The company's casing and drilling program is designed to afford more working room at the bottom of the hole.

The advantage of providing for sufficient working room on bottom was one of the lessons learned in drilling the No. 1-L LL&E. On that well, the Mecom spokesman adds, the operator simply ran out of working room when they reached the lower depths.

The company used a 28-in. bit for the first 200 ft. on the No. 1-S LL&E, then switched to a 22-in. bit down to approximately 3,000 ft.

Presently, the firm is using a 15-in. bit. After the 10¾-in. casing is set, the operator will start drilling a 9⅞-in. hole to 22,000 ft. If the hole is carried below that depth, a 7⅞-in. bit will be used.

Present plans call for the use of shale-type rock bits all the way. Harder

bits, of course, may have to be used as the hole gets deeper, the company spokesman notes.

The mud program for the super-deep hole is described as "standard." Mecom is going to use gyp and gyp-base muds. At 9,000 ft., operator converted 9.7-lb. and 9.8-lb. natural muds to gyp muds.

The company presently is using a 12.5-lb. mud. It is believed that 14.0-lb. material will be used by the time the 13,500-ft. level is reached.

After that point, according to present plans, the operator will use whatever type of mud is believed necessary to reach total depth.

Estimates are that an 18.3-lb. mud will be used when operator reaches the 20,000-ft. level.

The company estimates that the mud bill will run from one-fifth to one-sixth of the $2-million it's estimated the hole will cost.

If the total cost is held to that figure, it means the mud bill will run somewhere between $330,000 and $400,000.

This, adds the company, will be roughly the cost of the pipe.

Cementing operations are expected to come off smoothly.

The operator will have much better control over the cements used today than was the case when the No. 1-L LL&E was drilled. Officials note they can now test the cement at the surface before injecting it into the hole.

The company adds that it will use normal cement until the deep depths are reached. Then operator will switch to common cement, with silica flour to increase its strength, and will use retarders to control setting time.

The company anticipates temperatures up to 425F and perhaps higher below 20,000 ft. These temperatures may interfere somewhat with radioactive logging, but are not expected to affect electric logging.

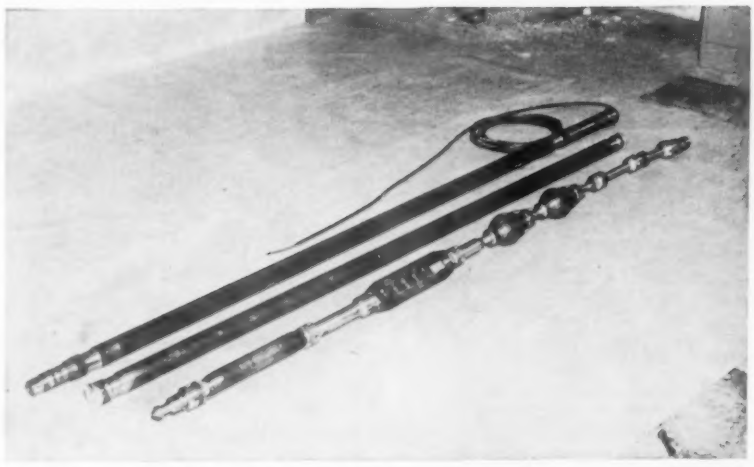
The 10¾-in. casing will be cemented all the way to the surface, to prevent the pipe from collapsing.

It's estimated it will take a total of ten months to complete the deep test if it goes to 26,000 ft.

No tests have yet been made in the hole and operator reports no logs will be run until the 18,000-ft. mark, or deeper, is reached.

The operator expects to run into nothing but Miocene shale and sand all the way down.

While the company has not released geological data so far, it's understood the company is looking for the same sands sought in all other deep tests in the area.



THIS DOWNHOLE TOOL, disassembled for transport, permits logging while drillpipe is being pulled, without material change in normal drilling procedure.

Drillstem Log Tool Passes Tests

A drillstem tool that permits electric logging while drillpipe is in the hole has proved out several important economic and operating benefits after six months of commercial operation.

The short-interval logging tool, a Sun Oil Co. invention announced early in 1959, is now being offered in southern Louisiana by Otis Engineering Corp. under an exclusive license agreement. The company calls the portable unit the "Otis DP Electric Log."

Until the past six months, the tool has been in the experimental stage.

With an eye to the future, the company is now conducting market surveys to see whether or not the tool should be offered in areas outside southern Louisiana.

The two most important developments that make it possible to record an electric log while pulling pipe, the company says, are (1) an electrode assembly that is washed out through the nozzle of a jet bit as the instrument is pumped down inside the pipe; and (2) a self-contained recording system using magnetic tape and transistors in a way that permits a high degree of accuracy in recording data (PW—Mar.27'59,p21).

Otis says the tool can log up to 2,500 ft.

C. W. Zimmerman, manager of electrical engineering for Otis Engineering Corp., outlined the tool's advantages at a recent meeting of the South Texas section, petroleum group, American Society of Mechanical Engineers.

Here are the advantages Zimmerman said the DP logging system had demonstrated during six months of field testing and six months of commercial operation:

- Logging costs are reduced because of the small amount of rig time used and the relatively low investment in logging equipment.
- The hazard of losing the hole while logging is reduced because the drill string remains in the hole and all parts of the logging system protruding into the open hole are drillable and expendable. Holes have frequently been logged when conventional wire line tools could not be run to the bottom because of hole caving or deviation.
- A means of semicontinuous correlation is provided since a log can be run economically on each bit change, and studying progressive invasion by overlap logging is feasible.
- The data is on magnetic tape in a form adaptable to computer analysis and to transmission over commercial telephone circuits.

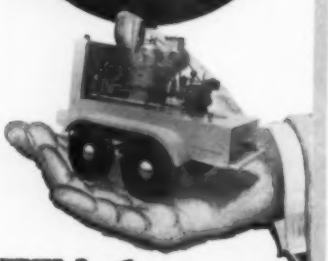
Several major company engineers say their companies have used the tool and feel it definitely has some merits in short internal logging.

Says one engineer: "It won't replace any existing tools, but it will provide us with still another type of tool to get the job done."

Another major company engineer reports that this is the first tool of this type to operate successfully. He reports that his company has used it four times, twice with complete success and twice with some mechanical difficulties.

However, he says, any new development is bound to encounter some mechanical problems.

MORE steam LESS bulk



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What's New / IN PRODUCTION

Ontario's Oil Springs To Be Waterflooded

Canada's oldest oil area, Oil Springs in Ontario, will be given a rejuvenating shot in the arm by Lambton Area Industries, Ltd., in the form of a secondary recovery waterflood program.

Oil Springs, it is contended, was discovered in 1858, and in recent years its output has dwindled to approximately 30,000 bbl. per year. LAI's Roy Smith and Ed Jacques estimate that less than 50% of the original oil in place has been recovered, despite prolonged commercial production and early oil-loss problems.

•

The use of rotary, positive gas meters made by Roots-Connersville Blower for automatic well testing of offshore production has passed from the experimental to operating stage on a Shell Oil Co. lease.

Shell started using the meters on an experimental basis some two years ago on a central production platform having 21 wells. It's reported that the meters passed the testing stage six months ago.

Since that time, however, use of these meters has been adopted by several other major companies, who also have used the rotary meters for such other production requirements as wellhead measurement and automatic custody transfer.

Roots-Connersville, one of the Dresser Industries, says its rotary meters have been gaining acceptance in the measurement of natural and industrial gases at pressures ranging from 125 psi. to 600 psi. Similar units, for line pressures to 1,200 psi., are now being tested.

Though rotary, positive meters have been used by gas distribution systems and some chemical industry plants for 30 years or so, it is only within the past three years that they have been accepted in petroleum.

•

Pan American Pertoleum Corp. will move its district exploration and production office from Shreveport, La., to Jackson, Miss., around July 1.

George W. Clarke, vice-president and division manager, said the Jackson office will have jurisdiction over Pan Am operations in northern Louisiana, southern Arkansas, Mississippi, Alabama, and other southeastern states. It will continue to be a part of the Central Division.

The move will combine personnel and operations of the Shreveport and Jackson offices.

P. D. Manning, district production superintendent at Shreveport, will be in charge of producing operations in the Jackson District. R. L. Nelson, district exploration superintendent in

Core Rig Is Flexible

This rotary drilling rig, Model H. D. 250-S "HI-VACuum," built by Houston Tool Co., Santa Susana, Calif., will take a continuous 2⅜-in. to 3-in. core sample to a depth of 250-ft. Its makers claim that the unit, which operates on a 30-hp., four-cylinder, air-cooled engine and has hydraulic controls, will core at any angle and in any formation, with either forced air or water. The unit will also drive casing while drilling. Twin clear-plastic tubes enable the operator to examine a continuous sampling of the stratum being cored, and to take samples without interrupting drilling. One man can operate the rig, which may be driven or towed.

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Marketing data include surveys on why motorists buy certain brands, how service station operators can turn customers' car worries into sales advantages, plus many other facts. Fuel and lubricant specialists are also ready to help you sell fleet customers.

For more information on this bonus of service, contact your nearest Du Pont representative, or write to: E. I. du Pont de Nemours & Co. (Inc.), Petroleum Chemicals Division, Wilmington 98, Delaware.

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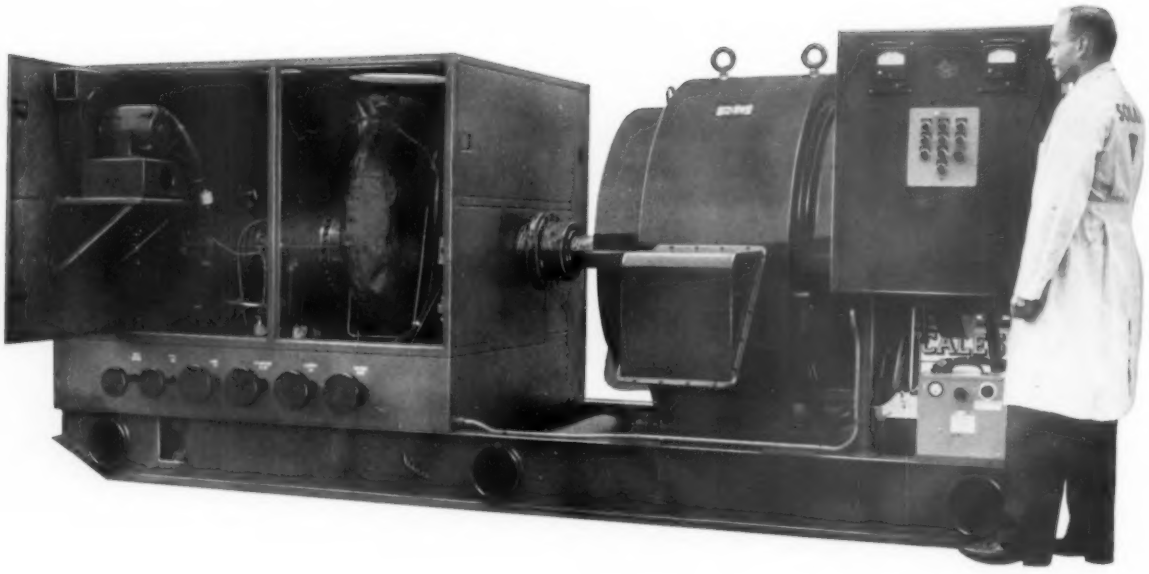
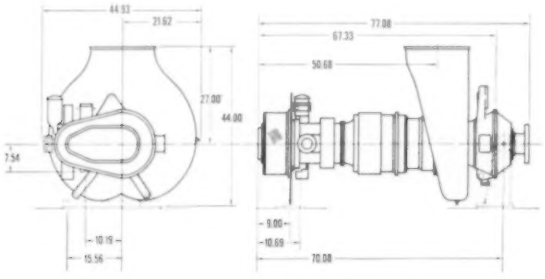


800 KW!

Solar industrial gas turbine generator sets ideal for peak loading or constant duty

Versatile, compact industrial generator sets powered by Solar's T-1000 gas turbine engine have a nominal rating of 800 kw. They are ideal for either peak loading or constant duty electrical power applications. Simple design and rugged construction reduces maintenance



to a minimum. Installation is extremely simple. The engine is about 1/10th as heavy as diesel units of similar horsepower and occupies only 51 cu ft. No elaborate foundation or flooring base is required because the gas turbine is practically vibration-free.

Equipped with one of the several control systems available, the engine can be operated remotely and entirely automatically. It starts instantly and operates at full load without warmup, even after long periods of standby service.

Fuel economy of the Solar T-1000 engine is unmatched in its field. The engine runs equally well on a variety of fuels including gasoline, diesel fuel and natural gas. The exhaust may be used in a waste heat boiler or as combustion air in process apparatus or conventional boilers.

Cost of this gas turbine is competitive with diesel engines in many industrial applications. For further information on Solar's turbine-powered generator sets, its complete line of gas turbine engines or industrial compressors, write to Dept. H-209, Solar Aircraft Company, San Diego 12, California.

SOLAR

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Jackson, will be in charge of the combined exploration district.

Clarke said the move is being made "in order to increase over-all operating efficiency."

•

The California Supreme Court has ordered the Long Beach Harbor Dept. to execute unit agreements for drilling on and repressurization of Fault Blocks 1 and 2 in the Wilmington field.

The city of Long Beach brought the action against Charles L. Vickers, general manager of the harbor agency, to test legality of the unit pacts.

The decision is expected to have an impact on future state leases of tidelands properties.

•

The Louisiana Mineral Board will hold its leasing of oil and gas tracts on Apr. 20, instead of May 18, as previously announced. Zone 1 offshore is included in areas for which nominations may be submitted. Deadline for nominations is Mar. 10.

Advancing the date will provide lawmakers with a workable knowledge of funds available when the legislature convenes in early May.

The state's last lease sale, held last November, netted more than $8-million.

•

Bonus bids totaling $1,319,081 were received in the sale of oil and gas leases on the Fort Peck Indian Reservation, in Montana.

The Interior Dept. reported last week that the average bid for the 32,500 acres offered was $40.58 per acre. Bids for 97 individually owned tracks, totaling 24,046 acres, amounted to $943,771. The 52 tribally owned tracts, covering 8,458 acres, netted $375,310.

•

Approximately 100 shallow wells in the old Angus field, Navarro County, Tex., have been acquired by Dee Baldridge, Pampa independent, and Epando Production Co., Wichita Falls, from Tex-Harvey Oil Co., Midland.

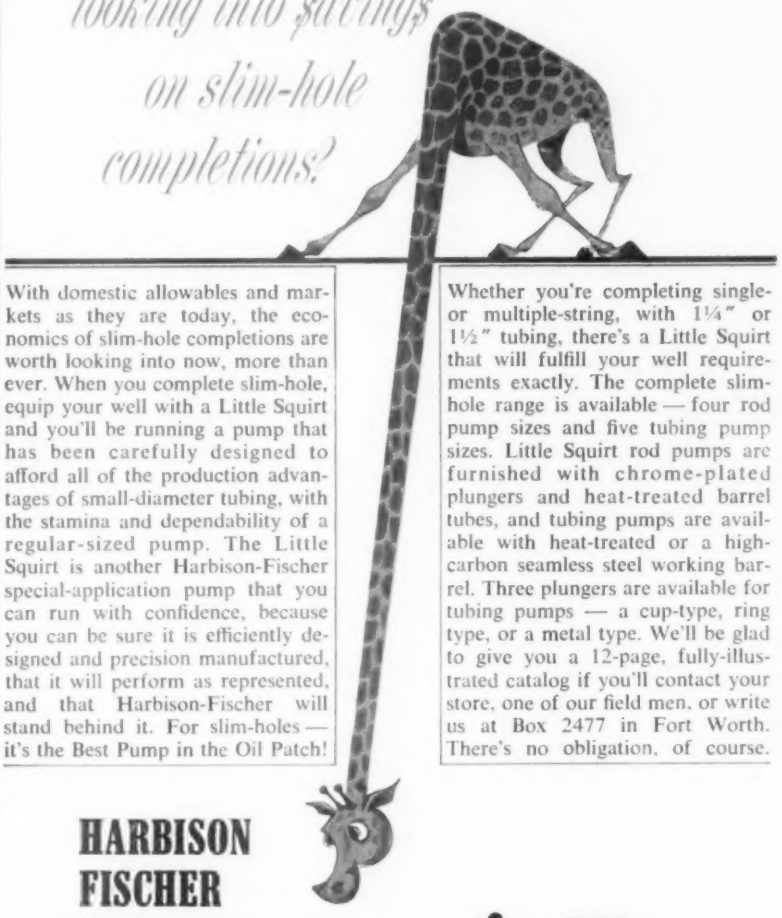
Details of the transaction were not disclosed. The new owners are planning a waterflood program for the Wolfe City and Nacatoch pays.

•

"Safe Practices in Geophysical Exploration Operations," a new safety publication by the American Petroleum Institute, is now available for $1 from the API Publications Depart

In slim-hole completions, one of the basic concepts is to equip a well for maximum income at a minimum investment. To acomplish this, the operator must install downwell equipment that will produce the desired allowable, despite its small-scale size. Operators who have been hesitant about slim-hole completions because of a lack of adequate pumping equipment can now get rod or tubing pumps in a full range of slim-hole sizes, with the assurance that the equipment will afford the same efficiency and performance as conventional-sized sub-surface pumps. As a result, the slim-hole trend has steadily increased — for marginal wells, for wells with virtually-depleted pays, and even new wells in proven areas.

looking into savings on slim-hole completions?



With domestic allowables and markets as they are today, the economics of slim-hole completions are worth looking into now, more than ever. When you complete slim-hole, equip your well with a Little Squirt and you'll be running a pump that has been carefully designed to afford all of the production advantages of small-diameter tubing, with the stamina and dependability of a regular-sized pump. The Little Squirt is another Harbison-Fischer special-application pump that you can run with confidence, because you can be sure it is efficiently designed and precision manufactured, that it will perform as represented, and that Harbison-Fischer will stand behind it. For slim-holes — it's the Best Pump in the Oil Patch!

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The 24-page booklet deals primarily with details of seismic operations. The basic safety principles suggested, however, can be applied to other phases of geophysical exploration.

•

All rigs and associated equipment belonging to Exploration Drilling Co., Tulsa, have been sold to Delta Drilling Co., Tyler, Tex., for an undisclosed amount. Involved in the sale are six rigs, located in Colorado, Utah, Wyoming, and North Dakota.

Although Exploration Drilling will no longer be engaged in contract drilling, it will continue to operate as an oil and gas producing company, with main offices in Tulsa and a branch office in Denver, Colo.

•

Sinclair Oil & Gas Co. and BP Exploration Co. (Alaska), Inc., have joined Richfield Oil Corp. (L.A.) in exploratory operations in the Katalla-Yakataga area of the Gulf of Alaska.

Sinclair exercised an option to acquire one-half interest in the operation, and then assigned one-half of this interest to BP, a subsidiary of the British Petroleum Co. group. Richfield will be operator.

Operations are being conducted under two development contracts, covering approximately 1,060,000 acres, granted to Richfield in 1959 by the Interior Dept.

•

Plans by Richfield Oil Corp. (La.) for the first ocean-floor completion off California received a setback last week when the test proved dry.

Richfield No. 101 State 1466, at Rincon, off Ventura County, was abandoned at 2,250 ft. (PW—Dec.30 '60,p35).

The company moved around 750 ft. northeast of dry hole to try again with No. 102 State 1466. A drilling barge is being used, with Western Offshore Drilling as contractor. The area is some 3,000 ft. west (seaward) of Rincon Island.

•

Drilling Highlights

Alberta—Texaco Exploration Co. No. 1 Okotoks, 1sd5-17-20-28w4, 2½ mi. southeast of Okotoks Devonian gas field, flowed oil at the rate of 720 b/d on drillstem test of the Viking at 6,155-223 ft. The well is the first significant oil discovery south of Calgary since the Turner pool was opened in 1936.

In northwestern Alberta, Imperial Oil Ltd. and Pan American Petroleum Corp. No. 10-20 Floral, 1sd10-20-84-12w6, was completed for 30-million cf/d of gas open flow. Production is from the Kiskatinaw sand, topped at 6,011 ft. The discovery is 2½ mi. northwest of a Stoddard zone gas success, drilled by the same team.

Nevada—This state's first well in six years, Shell Oil Co. No. 62-35 Eagle Springs Unit, section 35-9n-57w, Nye County, was completed for 414 b/d on the pump, based on a 10-hour flow, of 27-29-gravity oil through perforations at 6,178-88 ft. The well is ¼ mi. east of the discovery, completed in June, 1954. The new well is the fourth to be completed in Nevada.

New Mexico—Amerada Petroleum Corp. No. 1-VC State, section 36-17s-35e, Lea County, flowed 741 b/d of 39.3-gravity oil and 580-450 cf/d of gas through 20/64-in. choke and perforations at 8,890-910 ft. and 8,917-30 ft. in the Abo reef. The discovery is 2½ mi. northeast of the two-well Vacuum Abo field.

California—Gulf Oil Corp. of California No. 1 Stapp, section 3-14n-1w, Colusa County, flowed 10,542,000 cf/d of gas through ½-in. choke and perforations at 6,968-7,022 ft. in Cretaceous sand for a pay discovery in West Grimes gas field.

Northwest Louisiana—Tennessee Gas Transmission Co. No. 1 J. A. Seegers et al unit, section 3-23n-8w, Claiborne Parish, was completed for 480 b/d of 48-gravity oil and 900,000 cf/d of gas through 22/64-in. choke and perforations at 9,902-20 ft. and 9,925-33 ft. in the Sackover production in the Haynesville field.

Southwest Texas—Tennessee Gas Transmission Co. No. 1 Arthur Duderstadt, Peter Gass survey, A-129, Goliad County, was completed as a Cook Mountain discovery flowing 26-million cf/d of gas on open flow through perforations at 5,215-17 ft. The opener is ½ mi. northeast of the Wilcox oil discovery.

West Texas—Texas National Petroleum Co. No. 1 Jim Tom, section 30, block 35, Township 1s, T&P survey, Martin County, was completed for 186 b/d of 42-gravity oil through 16/64-in. choke and perforations at 9,200-55 ft. in the Wolfcamp. The discovery is 2¼ mi. southwest of the Gordon Street (Wolfcamp) pool.

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Gasoline Properties: a Tower of Babel

To meet the requirements of future automotive engines, gasoline specifications will have to undergo some changes: More meaningful measurement standards and more up-to-date testing techniques will be needed.

Current research on motor gasoline that may affect future specifications was reviewed this week in Philadelphia, at a symposium sponsored by the Technical Committee on Gasoline of Committee D-2 of the American Society for Testing Materials.

Such factors as fuel composition, volatility, and stability were considered. Present and proposed knock-rating methods were evaluated. Abnormal combustion phenomena of gasoline were reviewed, and suggestions for standardizing test procedures in that area were discussed. The role of gasoline additives was also examined.

The demand for cars showing improved economy and better performance will inevitably result in engines that will deliver more horsepower from smaller, lighter packages; this will mean more exacting fuel requirements.

T. H. Risk and A. E. Cleveland, of Ford Motor Co., summarized the requirements for a fuel that will be satisfactory in the car of tomorrow.

The engine package of the future will be smaller, and will display greater sensitivity to such properties as antiknock, volatility, and freedom from dirt, they said.

The problem of tomorrow's gasoline must be solved by automotive and petroleum engineers working cooperatively in the best interests of the public, the Ford engineers remarked.

Alternate ways of designing are usually available, when the refiners can show the automotive engineers that a certain design would call for a fuel difficult or uneconomical to produce.

Increases in octane ratings, for example, may put an excessive burden on refinery operation (PW—Dec.2'60, p15). On the other hand, substantial changes in fuel properties—such as volatility—may require more elaborate and expensive fuel-handling equipment in the engine and the vehicle.

"If it can be established," Risk said, "that a lower cost fuel can be enjoyed by the customer through this added vehicle installation, then the debits and credits should be evaluated and action taken to provide the most economical transportation. Such action cannot be sudden and unilateral, and, once determined, must be pursued with the consistency and intensity that has distinguished the cooperative development of higher-octane fuels and higher-compression engines."

Better standards of measurements, and revised or new test techniques, are needed in three main areas. The first is that of combustion noise.

"There has been some difficulty," said Risk, "in defining the noises caused by abnormal ignition. So far, terms such as rumble, thud, thump, surface ignition, and crunch, have been used. A noiseless phenomenon has also been observed, which melts the top of the piston and sprays it out of the exhaust.

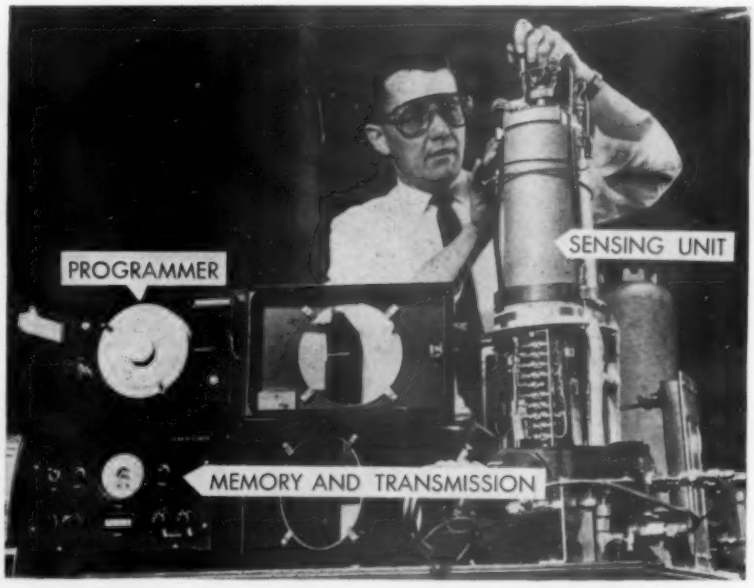
"New numbers—like the octane numbers—will probably be based on engine fuel requirements, compared to fixed reference standards of engine antiknock" (PW—Feb.3'61,p42).

About octane numbers, Risk had this to say: "Without considering refinery economics, it is obvious that the public can maintain the present cost of motoring only if the increase in price for an octane number above the currently marketed 92 to 95 [research octane] is somewhat less than linear. That is, 10% increase in octane number should result in less than 10% cost increase, because the thermal-efficiency gain is less than 10%."

Antiknock requirements have also been scrutinized in the part-throttle range, and evaluated in terms of laboratory and road octane numbers. But it cannot be stated categorically, Risk observed, that part-throttle knock tendency can be measured as an exact function of fuel sensitivity—that is, the difference between research method and motor method octane numbers.

A more comprehensive study along this line is necessary, Risk said.

The second area where efforts are desirable to establish better means



High-speed Fractometer Monitors Process

A multicomponent stream from the overhead of the debutanizer column of an alkylation plant is being analyzed by a Perkin-Elmer Vapor Fractometer.

The purpose is to recover a maximum of butanes and to minimize the pentanes in the overhead. The Fractometer analyzes both n-butane and isopentane every minute.

The programmer and the memory-and-transmission unit control the sampling and the operation of the sensing unit.

of communication between the oil man and the engine builder is volatility.

There are 13 different designations for volatility currently in use. Some constructive work is now being done by the Cooperative Fuel Research Committee (CRC) to simplify and standardize this language. Then it will be possible for the engine designer to consider the factors that relate refining economics to the expenses and losses encountered in ultimate fuel utilization.

Perhaps the most obvious engine problem is that caused by dirt of all kinds and qualities: This is the third area where extensive work is needed.

Dirt, as defined at the ASTM symposium, is any foreign substance that interferes with the satisfactory operation of the engine. It includes sludge, varnish, and deposits on combustion chamber, valves, and spark plugs, as well as particles that enter the engines with the fuel.

All of these are more or less directly influenced by fuel composition.

Definitions and test techniques needed to evaluate adequately the nuisance or damage caused by the various forms of dirt are lacking today, Risk said. Some progress is being done in the evaluation of sludge and varnish, and of combustion deposits. But no technique exists to define such dirt as the particles that clog filter and carburetor passages; or to evaluate spark plug deposits; or to distinguish the part played by the fuel from the part played by engine design in causing deposits in intake manifolds and in carburetors.

Acetyls Now Made A Simpler Way

A new process for making acetaldehyde and other acetyl derivatives will be applied by Celanese Corp. of America, in a plant it is building at Bay City, Tex. Capacity will be 100-million lb. a year.

Acetaldehyde was prepared heretofore by one of several processes:

- Vapor-phase oxidation of butane or propane from natural gas or refinery gas; this process results in the production of many byproducts.
- Hydrogenation of acetylene over a catalyst; but acetylene, at 14¢ per lb., is relatively expensive as a raw material.
- An addition reaction of water to ethylene, followed by dehydrogenation.

The new process makes acetaldehyde by oxidation of ethylene, over a palladium chloride and copper oxide catalyst.

Either air or oxygen can be used. When air is used, the catalyst must be regenerated periodically. This is not necessary when oxygen is used; regeneration is continuous. Yields are reported to be high—90% to 95%.

Celanese has licensed the process, known as the Wacker process, from Aldehyd GmbH, a company owned jointly by two German chemical firms, Wacker Chemie and Farbwerke Hoechst.

Chemical companies in Italy, Mexico, and Japan have also been licensed to use the process.

A part of the acetaldehyde at Bay City will go through further conversion, to make 2-ethyl hexanol.

This goes into the making of vinyl plastics, functional fluids, and synthetic lubricants.

Celanese has been making acetyl products for many years at its plants at Bishop and Pampa, Tex. (PW—Sep.11'59,p39), by oxidation of propane and butanes.

The new plant will boost the total production of these materials to over 500-million lb. per year.

Celanese has not yet decided where it will obtain its ethylene.

It is unlikely that Celanese will build a plant for making ethylene: its size would not be economical.

"But there is plenty of ethylene in this neck of the woods," a Celanese spokesman told PETROLEUM WEEK. "And a decision will be made soon. Then it will simply be a matter of making arrangements to bring it over."

Profitable Vanadium From Slag

The recovery of vanadium from the slag of oil-fired boilers is taking on added importance, now that mining for uranium is being curtailed.

Vanadium is usually found as a companion of uranium. Since uranium stocks are at present ample for the immediate needs of the atomic industry, mining of uranium—and, therefore, of vanadium—is being substantially curtailed.

Thus, one of the main sources of

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vanadium may soon be the slag collected from oil-fired boilers.

Substantial quantities of this slag are produced constantly, and it contains from 15% to 50% by weight of vanadium pentoxide.

Heavy fuel oil, such as used in large power plants throughout the country, contains about 0.1% of ash. About one-third of this ash, on an average, may be vanadium.

A plant such as the Hudson Avenue station of Consolidated Edison Co., in Brooklyn, N.Y., for example, which burns as much as 18-million gal. per month of residual fuel oil, will have as much as 70 tons of ash available every month—if none of it is discharged through its stacks. This means about 23 tons of vanadium pentoxide.

Demand for vanadium is growing steadily.

Most of it is used in the iron and steel industry. A significant portion is also used for the preparation of processing catalysts.

And certain catalysts that may become popular in afterburners, for cleaning up the exhaust of automobiles, contain a substantial quantity of vanadium.

It is not surprising, therefore, that companies are being formed to collect the vanadium-rich slag from large fuel oil consumers, and ship it to metal companies.

R. F. Norris, Larchmont, N.Y., who entered this business recently, told PETROLEUM WEEK that great care must be exercised in analyzing slag from various sources. Its value varies, of course, with the vanadium pentoxide content. But from a processor's standpoint, its value also varies with the type of products that are found in the slag, together with the vanadium. Nickel, for example, may give the processors considerable difficulty. So will sulfur.

Power companies welcome those who help them to get rid of their slag. These companies, Norris said, are now getting for their slag a sum equal to what it used to cost them to have it hauled away.

And metal companies are equally pleased with this type of recovery.

Vanadium pentoxide, at 95% to 98% concentration, costs from $1 to $1.38 per lb., according to a spokesman for Vanadium Corp. of America. And although it takes a great deal of work to extract the product from the slag— it involves roasting, leeching, concentrating, and precipitating— it should still be a profitable operation.

What's New / IN PROCESSING

Dow Chemical Co.'s capacity for polyolefin production continues to increase: It will build a second plant for the production of several polyolefins, at Plaquemine, La., and a new polypropylene plant will go on stream at Torrance, Calif., shortly.

The first plant at Plaquemine was completed three months ago. The new plant there will produce medium- and high-density polyethylene, copolymers, and polypropylene. It will utilize a Ziegler-type linear catalytic process modified by Dow.

•

Mobil Chimica Italiana, SpA, a new affiliate of Socony Mobil Oil Co., will build a major plant in Naples to manufacture benzene, ethylbenzene, orthoxylene, and paraxylene.

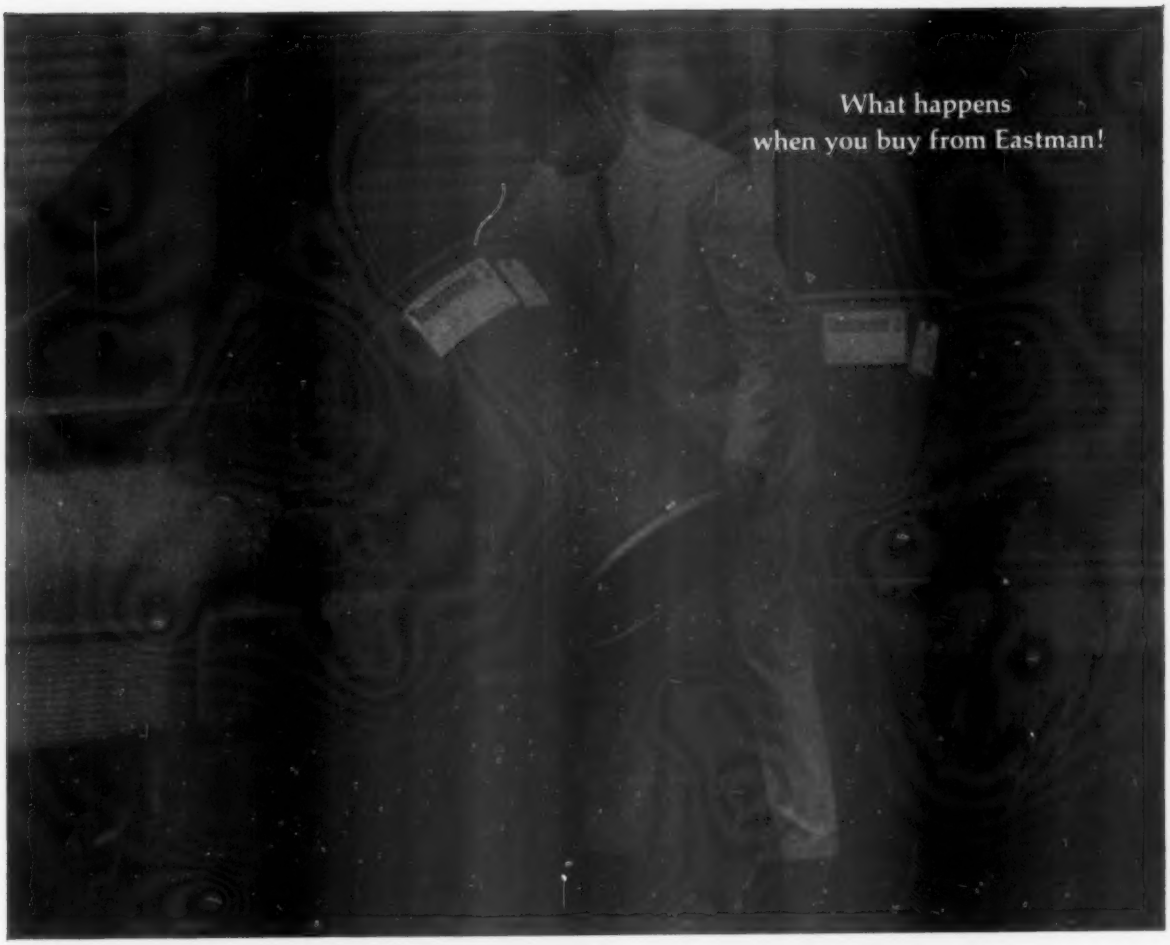
Paul V. Keyser, Jr., president of Mobil Chemical Co. and vice-president of Socony Mobil, says the plant's estimated initial yearly output will amount to 130,000 metric tons (39-million U.S. gal.), of which 75% will be benzene and orthoxylene. Most of the raw materials will come from an adjacent refinery operated by Mobil Oil Italiana.

•

A multimillion-dollar plant is being constructed at Institute, W. Va., by Goodrich-Gulf Chemicals, Inc., for the commercial production of Ameripol CB, cis-polybutadiene rubber.

The plant is expected to be in operation by the end of this year; the initial unit will have an output of 20-million lb. per year.

Ameripol can be used as a 100% replacement for natural rubber in heavy-duty tire treads, Goodrich-Gulf says. Another advantage, it adds, is that cis-polybutadiene rubber can be processed in conventional rubber equipment.



"A trunkful of gasoline inhibitor..."

"That's what he said," reports one of our sales representatives, "trunkful. And after removing fishing gear, debris from last year's vacation, plus my spare tire, that's what he got, in the form of two drums of Tenamene 3.

"The first part of the purchasing agent's late evening call was a soliloquy on the aberrations of suppliers in general. I agreed that a supplier who confused ditertiary butyl_____ (name withheld to protect the innocent) with ditertiary butyl cresol (Tenamene 3*) was a bit loose in the order-writing department. At the same time I was quietly glad that we do not sell the ditertiary butyl derivative of _____. It can happen, you know.

"Anyway that's what had happened. When they were ready to stabilize a run of aviation gasoline, a sharp foreman stopped the operation before the gasoline was adulterated rather than stabilized, since as a gasoline inhibitor the _____ derivative, being insoluble, doesn't even so much as contact the problem.

"To keep gum formation from getting a head start, I went out to our local warehouse at 4:30 A.M., loaded two 100-pound drums of flake Tenamene 3 in the trunk of my car, and took off with a little prayer that there were no loose nails in the road.

"There weren't, and I arrived at the customer's refinery at 9:00 A.M."

Normally, we move Tenamene inhibitor around the country by rail freight or truck transport. If possible we'd like to continue this practice. In an emergency, however, we're prepared to give our customers maximum personal service.

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Plastic Foam Cuts Crude Evaporation

A blanket of plastic foam can effectively cut evaporation losses in crude storage tanks not equipped with floating roofs.

This is the conclusion of the Evaporation Loss Committee of the American Petroleum Institute. It's based on the results of 37 tests that were conducted in both static and working service tanks.

Use of plastic foam is still limited, however. "Plastic foam can never be as foolproof as a conventional floating roof, and some extra supervision will be required," says the API committee. "Maximum benefits will depend on development of optimum conditions, which will vary with each specific case."

The foam consists of nitrogen-filled hollow spheres made of different types of synthetic resins of a nominal diameter of 0.001 in.

The foam forms a continuous flexible barrier between the liquid and vapor phase as it floats on the surface of the crude.

Manufacturers recommend a blanket thickness of about 1 in. for working tanks. Thickness may be as low as ½ in. for static service.

The reduction in evaporation loss varies according to the tightness of the tank and also to the vapor pressure maintained.

In static service, loss reduction of 70% to 90% can be expected with a ½ in. plastic foam blanket in a gas-tight tank, with a pressure-vacuum vent-valve set at from zero to ½ oz. per sq. in.

Tanks that are not gas-tight obviously have a greater loss reduction. On the other hand, tanks that operate at a pressure of several ounces may have only a 50% reduction.

Evaporation loss reduction is more significant in the early period of storage—under three months.

The API report points out that after three months the vapor-pressure loss of unprotected crude will have decreased so much that further evaporation loss will be slow, and the spreading of a foam blanket would no longer be practical.

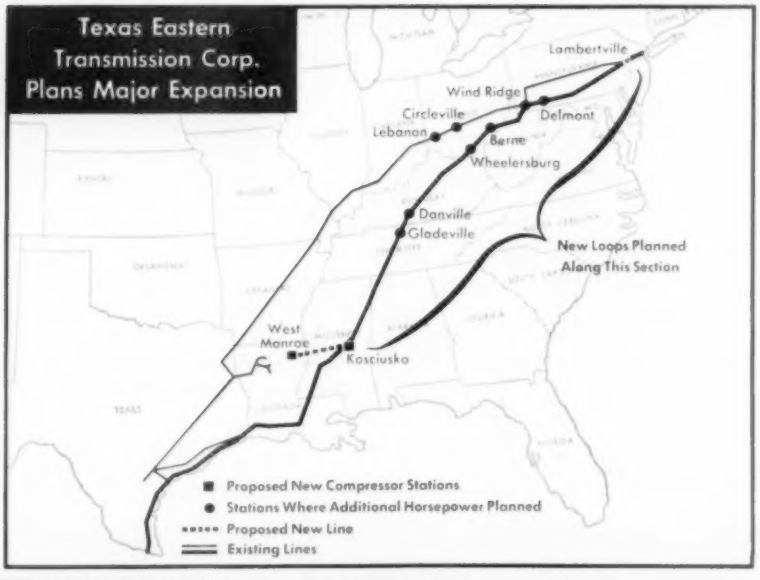
"Thus, the loss-reduction factor determined from a short test will be greater than that from a long test," API says.

Precautions must be taken with working crude tanks protected with foam to avoid "pump-out" and "sinking" of particles.

- Sufficient time must be given to allow the blanket, which becomes disturbed during pump-in operations, to reform properly. A minimum refloating time of 24 hours between pumping in crude and pumping it out is recommended by API.
- A well-designed inlet distributor should be used to eliminate excessive disturbance of the blanket during pump-in.
- An average "innage" of 12 ft. (innage being the depth of the crude remaining in the tank after pump-out) is suggested to avoid pumping out of foam particles.
- Care must be taken to keep down the content of basic sediment and water (bs&w) in the crude, which causes the foam particles to sink when they come in contact with it.

Another advantage of a foam blanket: It retards the evolution of hydrogen sulfide and therefore combats corrosion. Tests indicate that reduction of hydrogen sulfide formation is proportional to hydrocarbon loss reduction, according to API.

More Gas Slated for Northeast Markets



TWO-PHASE PROGRAM planned by TET calls for constructing lines and adding some horsepower this year and then completing compressor expansion program in 1962.

Texas Eastern Transmission Corp. plans to hike gas deliveries to the Northeast—and a portion of the Midwest—by 225-million cf/d under an $83-million expansion program now before the Federal Power Commission.

The proposal for additional lines and compressor horsepower is the second major expansion move by the company within the past six months. Last summer, FPC authorized TET to spend $46-million to hike gas shipments to Northeast markets (PW—Sep.16'60,p46).

The additional gas would go to 28 existing customers and three new ones, service to whom is made possible by the program.

Among TET's principal customers in the Northeast who are slated to receive the gas are Consolidated Edison Co., Brooklyn Union Gas Co., Long Island Lighting Co., all in New York; and Public Service Electric Gas Co., which serves a wide area of New

Jersey. The three new customers are Eastern Indiana Natural Gas Corp., Indiana Natural Gas Corp., and Westport Natural Gas Co., Inc., all in Indiana.

Plans call for dividing construction into two phases to extend over a two-year period.

Texas Eastern wants to spend $55.2-million this year to build a 165-mi., 20-in. line from West Monroe, La., to Kosciusko, Miss., plus 128 mi. of 30-in. loops along portions of its line between Kosciusko and Lambertville, N.J. (map.) It is also planning installation of 37 mi. of laterals in New Jersey.

The new line from West Monroe will move gas from there into Texas Eastern's main system.

In addition, the company proposes to build two new compressor stations —at West Monroe, and Kosciusko— and increase the horsepower at certain existing stations. Total horsepower increase under the first phase would be 51,000.

Under the second part, TET would beef up its compressor output by another 46,000.

Existing stations where power would be added are situated at Gladeville, Tenn.; Danville, Ky.; Wheelersburg, Berne, Lebanon, and Circleville, Ohio; and at Wind Ridge, and Delmont, Pa.

The order in which these stations would be enlarged hasn't been decided as yet.

TET hopes to have the first phase —which would hike capacity by 109-million cf/d—completed before next winter.

The remaining construction is planned for 1962.

Crude Pipeline Is Money-Saver

Crude producers in portions of the Oklahoma and Texas Panhandles will benefit financially from a pipeline system being built to the Phillips (Tex.) refinery of Phillips Petroleum Co.

The system will consist of 85 mi. of 4-in. gathering lines and a 75-mi., 6-in. trunk line, which are being constructed by Phillips Pipe Line Co.

The gathering lines will be connected to wells in the Camrick area of Beaver County, Okla., and to wells in Texas across the state line.

The pipeline will eliminate trucking charges for producers using it.

Truckers have been charging up to 45¢ a bbl. to move crude out of the area, depending on the destination.

Texas Panhandle postings for crude will prevail.

Current posted price for Texas Panhandle grade crude is $2.95 per bbl. for 40-degree oil, with usual gravity differentials above and below 40 degrees.

Immediate lease connections will be provided for 5,000 b/d to 6,000 b/d of crude and condensate, which previously had been trucked to several receiving stations in the two-state region.

In addition, the system will provide a shorter truck haul for other production in area, which is estimated at 5,000 b/d.

At a later date, it is expected, the system will be linked with intermediate fields between the Camrick area and the refinery.

LPG Line Construction Plans Jelling

Service Pipe Line Co. has been named design and construction agent for the LPG pipeline planned by four oil companies from Texas to North Carolina.

As agent, Service has been authorized to proceed "at once" with preliminary contractual arrangements covering design and construction of the $35-million pipeline.

No operator has been designated for the pipeline as yet, and the company that apparently will own it—Dixie Pipe Line Co.—had not been incorporated as of last week (PW—Feb.3'61,p53). It was reported, however, that incorporation was under way.

The four companies currently involved in the project are Phillips Petroleum Co., Warren Petroleum Corp., Tuloma Gas Products Co., and Union Texas Natural Gas Corp.

At least three other producers of LP-gas have been approached to join in the venture.

The three known to have been asked are Shell Oil Co., Mobil Oil Co., and Humble Oil & Refining Co. A spokesman for the proposed Dixie company says the line will be in operation by fall.

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What's New / IN PIPELINES, TANKERS, STORAGE

The Federal Power Commission ended last year with a bigger backlog of cases involving rate boosts proposed by independent gas producers than it had 12 months earlier.

The heavier backlog existed even though FPC disposed of more than three times as many cases in 1960 as it had in 1959—760 as compared with 240—according to chairman Jerome K. Kuykendall.

Pending on Dec. 31, 1960, were 3,605 cases, covering total proposed annual rate increases of $170,566,037, as compared with 3,065 cases involving increases totaling $154,316,544 per year at the end of 1959.

Last year, Kuykendall reports, FPC issued 219 certificates for construction of 5,784 mi. of gas lines, and disposed of 1,545 independent producer certificate applications, which leaves 2,789 applications still pending.

•

Construction of the California portion of the Rock Springs gas pipeline will be postponed at least until 1964 under a renegotiated contract between prospective purchasers and El Paso Natural Gas Co.

The revised contract was submitted to the state's Public Utilities Commission last week in conformance with a condition imposed earlier that provision be made to eliminate rate hikes during the early years of the project.

The purchasers—Southern California Gas Co. and Southern Counties Gas Co. of California—would pay 33.4¢ per Mcf.—instead of an originally proposed 40¢ per Mcf.—during the first two years of the new agreement.

In addition, the new terms provide that during the first two "load-building" years of shipments, gas would be carried within California in existing lines.

•

The Federal Power Commission has OK.'d a gas rate settlement under which Texas Eastern Transmission Corp. will refund $27,419,574 (plus 6% interest) on rates charged between Nov. 10, 1957 and Sept. 1, 1960.

The settlement, which was proposed by TET, also provides for the refund of "excess amounts" collected from Sept. 1 to the present—plus interest.

•

Buckeye Pipe Line Co. is planning to extend its Midwest products pipeline system from Flint to Bay City, Mich.

The 42-mi., 8-in. extension will cost $1.7-million.

•

Imperial Oil Ltd. is studying the possibility of storing Western Canadian gas in depleted fields in southwestern Ontario.

The company says it is investigating the proposition in an effort to solve the problem of leveling pipeline throughput during periods of light and heavy demand.

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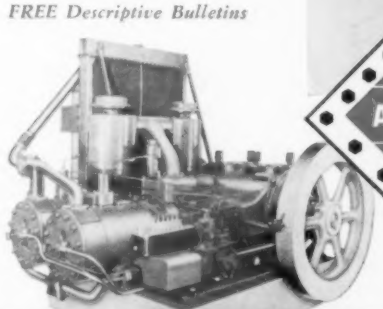

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- Bethlehem Steel Co. — Supply Division, Tulsa, Oklahoma
- Mid-Continent Supply Co. — Fort Worth, Texas

Union Readies Spanish Sahara Test

Union Oil Co. of California is reported ready to spud its first test in the Spanish Sahara and thus become the second firm to start drilling there.

The company has officially disclosed it will start drilling in the African territory early this year, though it declined comment last week on its immediate plans.

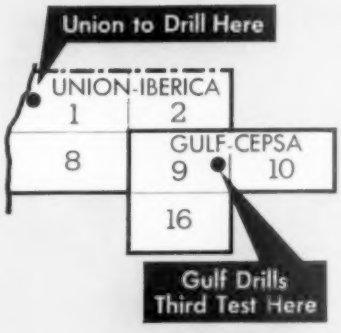
Gulf Oil, the first to drill in the Spanish Sahara, spudded its initial stratigraphic test last summer.

Union is said to have chosen for its first wildcat a location along the Atlantic coast in its Block 1 in the extreme northwest corner of the territory (map).

Union also holds two adjoining blocks, Nos. 2 and 8, with its private Spanish partner, Iberica.

Meanwhile, Gulf Oil is drilling ahead on its third stratigraphic test in the territory.

The new test, in Block 9, was reported below 2,500 ft. last week. The first two reached basement at very shallow depths. Gulf holds a total of nine blocks with Cepsa, a Spanish outfit.



There are no indications yet when the other U.S. firms with acreage in the territory will start drilling.

One report that the Champlin Refining-Sun-Pure group may move in a rig in the near future was described as "completely premature" last week by Champlin, the operator.

Other U.S. companies with acreage are: Phillips Petroleum, Pan American International, Atlantic, Tidewater with Sohio, Richfield with Cities Service, and Caltex.

Most of them, some with Spanish partners, are currently concentrating on geological, seismic, and gravimetric work—the first ever done in the territory.

Spain O.K.'s Ohio Oil Refinery Bid

MADRID—Ohio Oil moved a giant step closer to finding a European outlet for its Libyan crude by the Spanish government's approval in principal of its refinery plans.

Informed sources here said the Spanish cabinet had voted in closed-door session to grant Ohio, with Petrolifera Iberica, permission to build a 20,000 b/d to 25,000 b/d refinery (PW—Jul.15'60,p19).

Ohio has offered to finance 84% of the construction costs of the $20-million installation, but will end up with only a 28% interest in it.

Here's how the deal will work: Ohio will give free to the Spanish government a 52% interest in the refinery. It will also give its partner, Iberica, a 4% interest.

Since the remaining 16% of the capital will be supplied by Spanish banks, Ohio will end up with a 28% share.

But the big thing for Ohio Oil is a ten-year crude supply contract that's part and parcel of the deal.

That contract will assure an outlet for the crude to be produced in the Libyan oil fields Ohio holds jointly with Amerada Petroleum and Continental Oil.

The three companies' first Libyan crude is expected to flow sometime next year, upon completion of a 30-in. pipeline.

Continental took another tack to give itself outlets for its Libyan oil. It bought Sopi Mineralprodukte, a marketing system in West Germany. Amerada has not yet announced plans for use of its Libyan crude.

Another plus for Ohio is the existence of a built-in market, held tightly by Campsa, which holds monopoly marketing rights.

Ohio expressed assurance that Campsa will offtake all product from the projected refinery. This is important to Ohio. Since it has no important marketing outlets in Europe, the natural market for Libyan crude, it might have difficulty finding an export market for Spanish refined product.

There was some uncertainty in Madrid, however, whether Campsa would offtake all the projected refinery's product. The question, according to sources here, has not been definitely decided yet.

The new refinery would be built somewhere in the north of Spain, where an economic boom indicates energy demand will increase greatly in the next few years.

Ohio expects that the increase in demand will be sufficient to provide a local market for the refinery's product.

At present, Spain's refinery capacity exceeds demand.

The three Spanish refineries have a total capacity of 144,500 b/d, while demand is around 110,000 b/d.

Cepsa, a private Spanish refining

company, operates a 60,000 b/d refinery at Tenerife in Spain's Canary Islands. Some of the production, however, goes to Spain's overseas territories.

The Repesa refinery at Cartagena, in mainland Spain, has a capacity of 84,000 b/d. The company is owned by INI, a government agency (51%); Caltex (24%), and Cepsa (24%).

In addition, Campsa has a 500 b/d refinery at Barcelona.

Indiana Moves Into Australia Refining

Indiana Standard's wide-spreading search for refining and marketing interests abroad has landed it in Australia—for which it formally announced plans last week.

The venture, disclosed by Indiana's president, John E. Swearingen, includes construction of the first refinery in Queensland state (PW—Dec.23'60, p35).

The Australian refining plan is the first to be finalized by the company, though it has been investigating many areas, including Europe and Asia. It has been negotiating purchase of facilities in Italy, for example, and only recently withdrew a refining bid in Thailand.

The U.S. major has already set up Amoco Australia, Ltd., as a new refining and marketing subsidiary to build a refinery with initial capacity of 15,000 b/d near Brisbane.

Its headquarters are in Sydney, and it will be headed by F. McKinley Blough as managing director. Amoco Holdings, Ltd., has also been incorporated, as a holding company for that firm.

The plant is expected to produce gasoline, kerosine, diesel fuel, fuel oils, and other products for sale in Australia. The plant reportedly will go on stream in 1966.

"At some future date," Indiana "expects" there will be an opportunity for Australian capital participation.

Its announcement gave no indication of what form this might take. Indiana had denied an earlier report that it would participate in a Queensland refining proposal of Ampol Petroleum, Ltd., an Australian marketer with an option on a Port Alma site.

The Australian venture offers Indiana its first firm outlet abroad for any foreign crude production it develops in the many countries in which it has lined up exploration interests in the past several years.

Venezuelan Oil Sets Record—But It Was a Tight Squeeze

Oil production in Venezuela squeezed through to a new record in 1960—by a narrow 2.4% gain over the previous high in 1957.

The year's average wound up at 2,846,100 b/d, according to final figures released by the Ministry of Mines & Hydrocarbons (table).

This was an increase of 66,800 b/d over the 2,779,300 b/d average for 1957. Output in that year had been pushed up 12.8% due to the Suez crisis. It dropped back 6.3% in 1958, to 2,604,800 b/d, recovering 6.4% in 1959, for 2,771,000 b/d.

For the past decade, the annual gain had averaged 7.9%. In 1960, the growth rate was off sharply (PW—Jan.6'61,p40).

It came to 2.7% on a daily basis, with an increase of 75,100 b/d over the 1959 average.

On an annual basis—because of leap year—it amounted to 3%, with production up 30-million bbl. to a 1960 total of 1,041-million bbl.

Creole and Shell, Venezuela's two top producers, were among four companies whose output was down for the year. The other two were Mercedes and Talon, long-established minor producers.

A 7.8% drop by Shell resulted in the only substantial reduction in volume—63,700 b/d. The next largest, 15,400 b/d, represented a decrease of over 48% for Mercedes.

The biggest gains were made by Sun, Superior, and Phillips—"newcomers" to Lake Maracaibo—and Mene Grande, Venezuela's third-ranking producer for many years. Superior is the only one of these producing wholly for its own account.

Sun and Phillips each have varying groups of partners on different Venezuelan tracts acquired in 1956-57. (Phillips had Venezuelan production of its own before that, but not in the lake, where it made its first appearance with newcomers to Venezuela as partners.)

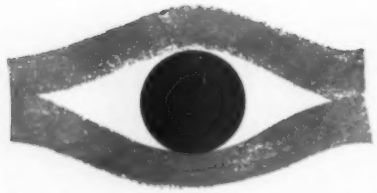
Mene Grande, though wholly owned by Gulf Oil, is in effect operator for three companies—its parent, and two companies that each hold 25% undivided interests in its production and facilities. These are Shell and International Petroleum, which, like Creole, is a Jersey Standard affiliate.

Richmond, a California Standard subsidiary, was the only other producer showing a noticeable increase over 1959, though still without regaining its 1957 average of 92,000 b/d.

Here's How Producers Wound Up in 1960

Company*	1960 Avg. 000 b/d	Change from 1959 000 b/d	Change from 1959 Percent
Creole	1,093.9	—14.4	— 1.3%
Shell	753.9	—63.7	— 7.8
Mene Grande	401.3	+30.7	+ 8.3
Mobil	120.3	+ 7.0	+ 6.2
Sun	81.7	+37.8	+ 86.1
Richmond	65.5	+15.7	+ 31.5
Texaco	56.4	+ 0.5	+ 0.9
Phillips	53.8	+24.8	+ 85.5
Sinclair	51.4	+ 3.6	+ 7.5
Superior	40.9	+24.9	+ 155.6
San Jacinto	38.6	+ 3.8	+ 10.9
Atlantic	27.3	+ 1.4	+ 5.4
Signal	26.0	+ 1.3	+ 5.3
Mercedes	16.5	—15.4	— 48.3
Caracas	9.0	+ 8.9	+8900.0
Coro	8.3	+ 8.2	+8200.0
Talon	1.1	— 0.2	— 15.4
Continental	0.2	+ 0.2	+ 100.0
Total	2,846.1	+75.1	+ 2.7

*For joint ventures, total group production is listed under operator's name.



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What's New / AROUND THE WORLD

NIGERIA—Mobil's third Nigerian test, like the first two, has been abandoned as dry.

The No. 1 Bodashe, close to the Dahomey border in western Nigeria, was drilled to 4,954 ft. The hole was spudded Jan. 10.

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SOMALIA—Sinclair has had an encouraging show of oil—its first in East Africa—in a Somalia wildcat 50 mi. west of Mogadiscio at Coriole.

The wildcat, though of doubtful commercial possibilities, encountered more porosity than previous tests. It is the sixth drilled by Sinclair Somal for the account of Sinclair and the Conorada group of companies, its partners in Somalia. By itself, Sinclair had also done considerable drilling in neighboring Ethiopia before it withdrew four years ago.

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SAUDI ARABIA—Aramco has spudded another test in its shut-in Abu Hadriya field, following completion of a fourth potential producer. The latest well, No. 7, was carried to 9,550 ft. and was the second to find oil in the Arab Zone. The two others, including the 1940 discovery, found production in the deeper Hadriya zone. The oil is 35-gravity (PW—Nov.25'60,p35).

•

NETHERLANDS—Due to rising output from newer fields, production was boosted 8% in 1960 to 1,917,669 metric tons, from 1,773,212 metric tons in 1959.

Nederlandsche Aardolie Maatschappij, a joint Shell-Jersey Standard company and Holland's sole producer, said output rose 35% in new fields near the Hague and Rotterdam, while declining 10.8% in older fields to the east.

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JAPAN—Crude oil imports jumped 43.2% in 1960 to 192.5-million bbl., from 134.5-million bbl. in 1959, according to the Ministry of International Trade & Industry. Approximately 4% of the total came from the Soviet Union.

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SAUDI ARABIA—Aramco relinquished 33,700 sq.mi. of its exclusive concession area in 1960, making a total of 140,414 sq. mi., or 28%, turned back since 1948.

The total is "more than 80% of the size of Iraq, or about twice the size of Syria," said Aramco president Thomas C. Barger in a year-end report in Sun & Flare, the company newspaper published in Dhahran. In addition, Aramco also has relinquished 135,200 sq.mi., or 76% of its preferential area.

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BRAZIL—A geologist has been named president of Petrobras, Brazil's oil development monopoly, by the new administration. He is Geonisio

Japan Oil Market Draws Non-Oil Firms

TOKYO—New competition for Japan's booming oil business is taking shape as Japanese firms without previous oil operations move into marketing.

Several are making the move, anticipating the government's eventual abandonment of its foreign exchange controls and licensing for oil imports.

One is a trading company that last year bought into Arabian Oil Co.—the Japanese firm that holds Middle East oil rights—and has a member on its board.

Last week the firm, C. Itoh, opened its first service station in Tokyo.

Another, with plans to build 20 service stations, is a railway-real estate-department store complex, which industry circles believe will also eventually move into refining. The company is Seibu, which also opened its first service station last week, in suburban Tokyo.

In addition, announcement is expected momentarily of long-awaited entry into the business by the Mitsui group, headed by Mitsui Bussan Kaisha, Japan's biggest trading firm.

Barroso, formerly Petrobras' production chief at the Bahia fields. The post in past years has been held by political appointees.

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AUSTRIA—Crude output declined further in 1960, to 46,032 b/d, from 47,182 b/d in 1959. Natural gas production was up 15% to 53-billion cu. ft.

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VENEZUELA—The new government company may set a target of 10,000 b/d of crude production within a year Oil Minister Juan Perez Alfonzo said last week. He added that it is also considering marketing gasoline in Venezuela.

The Minister previously indicated that the company would start operations by drilling offsets to established production in Lake Maracaibo, where it has been assigned extensive acreage.

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CUBA—The Soviet Union this year will supply Cuba with 3.5-million tons of crude plus 950,000 tons of products, according to official figures released in Moscow last week.

The 1961 deliveries are a continuation of an oil-for-sugar trade agreement that was first implemented last year.

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NEUTRAL ZONE—The Japanese now have an indicated producing potential of over 50,000 b/d from nine wells completed so far in their offshore Khafji field. The Saudi Arabian Oil Ministry announced that the latest well was tested at a flowing rate of 5,460 b/d. It listed test rates ranging between 4,500 b/d and 7,000 b/d, with a total of 52,860 b/d, for the nine completions, or an average of 5,873 b/d.

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AUSTRALIA—The first joint wildcat of General Exploration Co. of California and Santos Ltd., Adelaide, will be spudded this month.

The test will go down on the Coonawarra structure in the Panola District of South Australia.

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WEST GERMANY—The rise in German oil consumption in 1960 exceeded forecasts, with bigger boosts than expected for gasoline, diesel fuel, and heating oils.

The biggest increase was registered by light heating oil, which rose 57.6% over 1959. Total heating oil consumption rose 38%, despite introduction of a heating fuel tax.

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ARGENTINA—Argentina may find a market for its crude in Spain when—and if—it has a surplus.

The Spanish independent, Cepsa, reportedly has approached YPF, the Argentine state oil firm, on possibilities of buying crude for processing at Cepsa's Canary Islands refinery. Cepsa will first purchase a small test quantity.

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JORDAN—Jordan's first oil refinery—a $10-million, 6,600-b/d plant—went on stream last week.

The plant, north of Amman at Zarqa, is owned by Jordan Petroleum Refining Co. Ltd., with minor government participation. An affiliate of ENI, the Italian state oil firm, built the installation, which is designed to supply the local market.

•

EGYPT—Offshore drilling will be started in the Gulf of Suez in a few weeks on a seismic structure believed to be an extension of the onshore Belayim field in Sinai.

The first test will be a few miles off Belayim Bay on an offshore permit of COPE (Cie. Orientale des Petroles), the Sinai producing company in which Italy's ENI and Petrofina control a 51% interest, with 49% held by Egypt.

The drilling contractor is Saipem, an ENI subsidiary. Its "Scarabeo" drilling platform, a U.S.-built LeTourneau unit, was towed to the Suez Gulf last week from Italy.

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AUSTRALIA—Qatar has replaced Iran as Australia's biggest single crude source, though Indonesia is the leading oil supplier if products are included, Australia's Petroleum Information Bureau reports.

Qatar accounted for 16.3-million bbl.—or 26%—of the total crude imported in the fiscal year that ended last June, followed by Indonesia with 13.2-million bbl., and Iran with 9.6-million.

•

ITALY—Construction of a Trieste-Vienna pipeline has been decided on, says the Italian Minister of Industry. No details of the plan—long a subject of conflicting reports—were given, except that it resulted from negotiations between Italy and Austria.

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Superstation Experiment: A Success

Signposts turn the trick. They lead motorists into the only Indiana Standard station in Vincennes, Ind. TBA sales are hailed as "fantastic."

Standard Oil Co. (Ind.) has proved that one station can be just as good as nine: In Vincennes, Ind., its single superstation has regained all the gallonage lost through the closing of eight smaller outlets.

The success of this superstation experiment may have far-reaching effects not only within Indiana Standard but throughout the entire industry.

If Standard's experience proves applicable in other companies, there are at least two benefits that will be gained.

- Oil marketers will be able to effect significant reductions in marketing investment and still retain their current market share.
- All the problems—financial and otherwise—associated with competitive overbuilding of service stations may be avoided.

In Vincennes, Indiana Standard is already enjoying these two gains.

So says a top marketing official in the company, who, though he declined to release comparative figures, vouched for the "success" of the superstation experiment.

There is another successful side to the Vincennes story: Not only was gallonage kept high but motor oil and TBA sales were greatly improved.

Although these sales might normally have been expected to parallel gallonage, the Standard executive claims that sales of motor oil and TBA actually increased at a "fantastic" rate.

At Fairfield, Iowa, and Mattoon, Ill., where Indiana Standard also opened superstations, the company has enjoyed similarly successful results.

But because the scope of experiment in those towns was much smaller the effect is less impressive.

In Fairfield, for example, the company reduced its representation 66% from three stations to one. (This compares with the 89% reduction in station number—from nine to one—at Vincennes.) Furthermore, the population at Fairfield is only 7,500, compared with 20,000 at Vincennes.

At Mattoon, a city of 19,000, there was a 60% reduction in station number, from five stations to two.

In both Fairfield and Mattoon, gallonage declines incurred through the closing of stations was regained at the larger outlets. In addition, the same "fantastic" improvement in TBA sales was experienced.

How was this done? The answer is that Standard was able to shift the transient flow of motorists from its old stations to its superstations.

All these superstations are situated in high-volume locations. As PETROLEUM WEEK showed last year (PW—Mar.11'60,p28), Standard's Vincennes station is located at the intersection of two main highways. It is virtually at the best corner in town.

But at least five of the other eight Standard stations were also located along these highways and, in a sense, could serve as advertisements of the Standard brand or as reserves to catch the volume that the centrally located station missed.

Despite the closing of these stations, Standard lost no transient gallonage. In fact, the company enjoyed an increase in transient sales.

It was done by replacing stations with spectacular billboards.

Along the main arteries leading into Vincennes (and into Fairfield and Mattoon, as well) Standard erected outdoor announcements locating the superstations and encouraging motorists to wait until they reached them to buy their gasoline.

The signposts apparently worked.

Motorists looking for the old Standard stations were willing to hold their demand for the superstations.

On the other hand, Standard suffered losses in neighborhood business.

The superstation at Vincennes, though it improved its own local volume, certainly did not capture all the local business that was released through the closing of eight stations.

Standard's competitors were able to take some of this business for themselves. But the increase in transient volume fully compensated for the loss, the company says.

To account for the sharp increase in TBA sales, Standard points to the simple rules of merchandising that all dealers should use—but don't.

The Vincennes station started off with a gala opening and offered a consistent program of weekend "specials." Moreover, more advertising was pinpointed on the single superstation that had ever been budgeted for all nine stations before the superstation test.

Besides these factors, Standard attests to the importance of the considerably improved service offered at the superstations. "It wasn't so much

What's New / IN MARKETING

that the quality of service was improved," the Standard executive comments, "as the quantity of it."

Attendants at the station were encouraged to push TBA merchandise, and were offered a commission on the items they sold.

What will Standard do with the results it has achieved at its superstations? Nothing—at least for a while. It has no plans to apply them in other markets. The company feels that there is still a lot of planning and studying to do to evaluate the significance of its findings.

Furthermore, the tests at Vincennes, Fairfield, and Mattoon are continuing and, at least in Vincennes, are being modified to provide data on other retail marketing concepts.

At Vincennes, Standard is testing the commission-manager approach to station operation.

Darryl Doess, a former dealer who became manager of the Vincennes superstation, has now accepted a 100% cut in salary.

All the money he earns from the station must come from commissions. He receives a percentage of everything he sells at the station.

This is the first time that Indiana Standard has ever tried the commission approach. And the Vincennes station is the only Standard outlet where the idea has been introduced.

Suburban Gas Grows in South

Suburban Gas, the LP-gas marketer that has made a habit of acquisition on the West Coast, is now expanding in the South.

Last November, Suburban surprised its competitors by reaching across the continent to acquire Dekalb Gas Co., in Stone Mountain, Ga.

Suburban since has marched into Kentucky to acquire Rural Natural Gas Co., Ludlow, Ky.

This $3.5-million acquisition actually gives Suburban its first piece of the midwestern market: Rural Natural Gas markets in both northern Kentucky and southern Ohio, as well as a small part of Indiana.

The expansion is part of a broad strategy to escape the effects of the "significant changes" that have "condemned the small LP-gas marketer."

These changes, says W. R. Sidenfaden, president, include shrinking residential markets, stiffer competition (especially from electricity) mounting capital needs, and a growing tax burden.

Sharper Focus For Market Researchers

Oil men will soon be offered a "new dimension in marketing data" to assist them in measuring and studying their markets.

Compiled by S. J. Tesauro & Co., Detroit, the data will provide a new focus on housing and population, correlated in dozens of unusual combinations, the company says.

For example, marketers will be able to relate fuels used for heating with the size, condition, and location of homes. Fuels used for cooking can be compared with household income.

A profile of two- and three-car families may be drawn, and the way a man commutes to work in the morning can be compared with the number of cars he owns and how much money he earns.

There are data on home airconditioners and dryers for oil marketers who are interested in the potential market for new oil-fired appliances.

The source of this flood of statistics is the 1960 decennial census.

When the first reports are ready (in June) they'll begin drawing a complete (50-state) market picture, scaled down to the county level.

•

Jets Nose Out Autos

In Hawaii, airplanes have become a bigger market than automobiles for Shell Oil Co., the second largest marketer in the state.

Airplanes haven't become that important anywhere else in the nation, but the Hawaiian breakthrough is symptomatic of the impact jet airliners can have on oil marketers.

Despite this, Shell assured its dealers in Hawaii that the neighborhood service station is still the key to success. Selwyn Eddy, West Coast marketing head for Shell, flew to Hawaii to tell the dealers that Shell is beefing up its real estate staff.

The company wants more service station sites to counter the growing competition in the islands.

•

Trading stamps—the perennial topic of controversy among marketers—threaten to split the Washington state legislature in a battle over two completely opposite bills.

One bill, endorsed by the Washington Gasoline Dealers Assn., would outlaw trading stamps entirely. (Such a bill was passed in Wyoming.)

A second bill introduced in the Washington legislature would permit merchants to give either cash or prizes to those who save stamps.

An important feature of this bill is that it would rescind the $6,000 fee that merchants must now pay before they can give prizes to stamp collectors.

•

The low-octane appetite of compact cars is apparently having its effect on the octane ratings of the nation's gasoline: They've showed no gain since August.

Premium gasoline averaged 99.3-octane last month, and regular was steady at 92.6-octane, according to Ethyl Corp.

This is exactly where the ratings stood in August.

Since then, regular slipped to 92.5 for two months, but other than that no changes have occurred.

•

Parking garages located in the center of town have become a predominant influence on market trends in Europe, according to a top marketing executive in Standard Oil Co. (N.J.).

In essence, these garages, which are blossoming in England and several continental nations, reverse the traffic tendencies that have become common in this country.

Instead of the suburban pull exerted by shopping centers and the growth of outlying housing developments, the garages continue to attract motorists to the big cities.

•

Fuel oil dealers in Panama City, Fla., have gained new status, but it's a status they'd rather do without: They're now put in the same tax class as public utilities.

It all started when Panama City slapped LP-gas dealers with a 10% tax on sales, similar to the tax placed on public utility sales.

Instead of fighting the tax, angry fuel oil dealers charge, LP-gas dealers urged the city to extend the tax to fuel oil dealers, too.

W. J. GOLDSTON has been elected a director of Tex-Tube, Inc., Houston. He is president of Goldston Oil Corp. and Goldrus Drilling Co. Goldston is also a director of the First City National Bank of Houston and Movible Offshore Co., Houston, and has been president of the Mid-Continent Oil & Gas Assn.

E. B. Germany

W. J. Goldston

E. B. GERMANY, president of Lone Star Steel Co., Dallas, assumes the added duties of chairman, succeeding the late **Fred F. Florance.** At the same time, **James W. Aston,** president of the Republic National Bank, Dallas, was elected a Lone Star director. **Max R. Dodson,** formerly vice-president-controller, has been elected vice-president, finance, and controller. **Howard Jensen,** Lone Star's vice-president, legal, will also be in charge of the company's land department.

J. MARCUS POWELL and **C. A. BULOT** have joined Dunwoody Pipe & Supply Co., Houston. Powell will be pipe sales representative in West Texas, with offices in Midland, and Bulot, tubular sales engineer, will be located in Dallas, covering North and East Texas, and the Shreveport (La.) area. Powell was formerly associated with National Supply Co., in field and district managerial positions, in Louisiana and West Texas. Bulot also came from National Supply where he specialized in the pricing of tubular exchanges, rate equalization, and manufacturing problems.

OIL CENTER TOOL CO., Houston, has named Wayte Industrial Supply Corp., Williston, N.D., as sales and service agent. Wisco will handle Oil Center Tool's complete line of wellhead equipment, and will service oil and gas producers throughout North Dakota and eastern Montana. Oil Center Tool will contine to maintain a sales and service office in Casper, Wyo., to serve Wyoming and southern Montana.

JARVIS BROWN is the new advertising and sales promotion manager for Weatherford Oil Tool Co., with offices in Houston. Brown, who joined the company in 1947, has been supervisor of manufacturing quality control, and manager of several district sales offices.

HARRY HILL ASSOCIATES, INC., New Orleans, La., has been appointed manufacturer's representative for RCA microwave products in Louisiana, Texas, Oklahoma, and Arkansas. Harry Hill, president of the company, is a former employee of Radio Corp. of America, and has been engaged in the two-way radio and microwave business for the past 20 years.

WILLIAM W. GREEN moves up to manager of Mid-Continent Supply Co.'s store at Gainsville, Tex. He has been field salesman at the company's Wichita Falls (Tex.) store since 1955. Green joined Mid-Continent in 1950 at its store in Abilene, Tex. He was transferred to the Bowie (Tex.) store in 1951, and remained there for four years before moving to Wichita Falls.

F. E. JACOBS moves up to comptroller of the oil tool division for Hughes Tool Co., Houston, and **Paul Garmany** has been appointed assistant vice-president, for credit, property taxes, and insurance for the company, and **J. E. Hodges** is also a new assistant vice-president. Hodges will continue as assistant to the senior vice-president, and as director of planning and coordination. Jacobs, who joined Hughes in 1945, was most recently comptroller for the company's international operations. He is a director of Hughes Tool Service Ltd., in Canada, and Hughes Tool Co., Ltd., in England. He is also sercretary-treasurer and a director of of Hughes Tool Co., S.A., operating in Venezuela. Garmany, who has been with Hughes for the past 32 years was most recently comptroller, domestic operations. Hodges has been a technical advisor in accounting for Hughes, and an economist, and director of operations research.

F. E. Jacobs

M. Gould

MATTHEW GOULD will direct the development of chemical equipment in the chemical research and development department at Hagan Chemicals & Controls, Inc., Pittsburgh. He will be primarily concerned with the development of chemical analyzers, and chemical feed equipment. Gould emigrated from England to Canada in 1957, and joined Hagan Corp., Ltd., in Toronto, that year. He was then transferred to Edmonton, and remained there until this new appointment.

TURNER G. GARWOOD has been promoted to manager, eastern hemisphere, for Otis Engineering Corp., with offices in London. He will be responsible for sales and service operations, and be available for consultation on Otis production equipment and wire line services. For the past two years, Garwood has been European representative for Otis, at Geneva, Switzerland, working with companies in England, France, Holland, Germany, Austria, Italy, Algeria, Iraq, Kuwait, and Saudi Arabia. Before his assignment in Geneva, he was in charge of European export sales in the company's general offices in Dallas.

C. Cross

T. G. Garwood

CLINT CROSS has been elected vice-president in charge of manufacturing for the W. C. Norris Division, Dover Corp., Tulsa. He succeeds **R. A. Colgin,** who has retired. Cross, who joined Norris in 1933, has been its general superintendent for the past 15 years. **James A. Howard** succeeds Cross as general superintendent, and **A. J. Scott** has been named assistant superintendent, succeeding Howard.

J. E. HIMMELRICH has been promoted to sales manager for pipeline coatings in the protective coatings division of Pittsburgh Chemical Co., at the company's headquarters in Pittsburgh. He was formerly located in New York as regional sales manager for the division's eastern territory. He has also served as division sales representative in Tulsa, and in the Pittsburgh area.

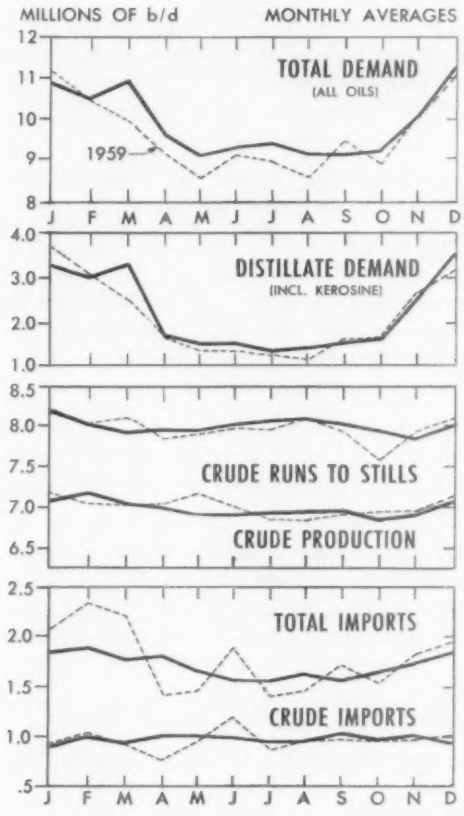
KINZBACH ENGINEERING CO. has been formed to continue development, manufacture, and marketing of the line of Kinzbach relief valves. The product line was one of the lines formerly manufactured by Kinzbach Tool Co., purchased by Bowen-Itco, Inc., last year. The facilities for the line have been acquired from Bowen-Itco by the new company.

J. L. MORRISON, MARVIN PORTER, and **LEE BIDWELL** are new gas lift sales engineers for Otis Engineering Corp., Dallas. Morrison, formerly with Otis at New Iberia, La., has been assigned to its Laurel (Miss.) area. Porter, who will be located in Victoria, Tex., was formerly a petroleum engineer for a Texas producer. Bidwell will be gas lift sales engineer for the Belle Chasse-New Orleans (La.) area.

C. L. WALLACE and **W. C. BLACKLEDGE** have been promoted to store managers for the Jones & Laughlin Supply Division. Wallace, who was formerly a salesman at Brookhaven, Miss., is now store manager there, and Blackledge, now store manager at Natchez, Miss., was formerly a salesman there.

PETROLEUM WEEK'S

Fingertip Figures



Supply-Demand Figures for January

(millions of b/d)

	January 1961	January 1960	% Change
Total Demand (Inc. Exports)	11,359	10,672	+ 6.4
Gasoline	3,747	3,655	+ 2.5
Distillates (Inc. Kerosine)	3,784	3,285	+15.2
Residual	1,877	2,042	— 8.1
Total Supply	10,195	10,088	+ 1.1
Domestic Crude	7,176	7,230	— 0.8
Nat. Gas Liquids	900	944	— 4.7
Total Domestic	8,076	8,174	— 1.2
Crude Imports	1,108	923	+20.0
Total Imports	2,119	1,914	+10.7

Figures for period ended Feb. 3, except as noted

RUNS TO STILLS

Latest week	8.297
Previous week	8.401
Year ago	8.199

CRUDE PRODUCTION

Latest week	7.137
Previous week	7.198
Year ago	7.293

TOTAL IMPORTS

Latest week	2.191
Previous week	2.254
Year ago	2.044

CRUDE IMPORTS

Latest week	.999
Previous week	1.134
Year ago	1.020

Demand for all oils last month made the best showing for any January since 1957, and scored a 6.4% increase over last year.

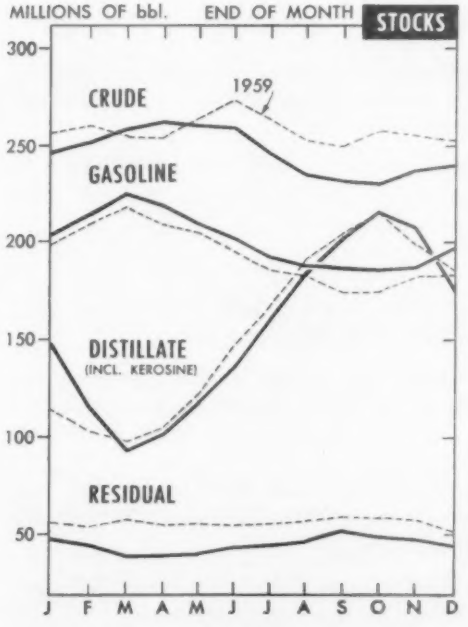
Total demand for the month averaged 11,359,000 b/d, according to preliminary data. It was 45,000 b/d short of the all-time record for January, set five years ago. And it was only 186,000 b/d lower than the highest monthly demand on record—11,545,000 b/d in December, 1958.

The shot-in-the-arm for demand came from the brisk call for heating oil—demand for which averaged 358,000 b/d higher than last January.

Demand for distillate (excluding kerosine) averaged 3,164,000 b/d, up 12.8% from January, 1960.

Daily crude runs averaged higher in January than in any previous month, preliminary figures show.

Runs to stills last month averaged 8,323,000 b/d, an increase of 44,000 b/d over January, 1960.



CRUDE STOCKS

Week-ended	
Jan. 29	236.1
Previous week	236.4
Year ago	248.8

GASOLINE

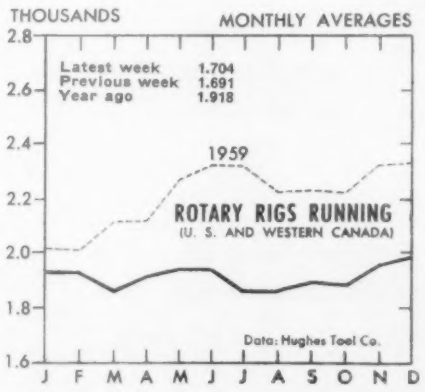
Latest week	214.3
Previous week	210.0
Year ago	206.4

DISTILLATES

Latest week	132.7
Previous week	143.9
Year ago	145.8

RESIDUAL

Latest week	43.4
Previous week	44.4
Year ago	47.7



The Market Trend

AT-A-GLANCE PETROLEUM WEEK Copyright

Light Fuel Oil Is the Star Performer

Fuel oils are very healthy products this week, but gasoline is a shade less so. The record freeze has cleaned the markets of spot No. 2 fuel. Heavy fuel is strong, too, with suppliers looking for some easing in import quotas.

No less than 30 cargoes of No. 2 fuel have been traded on a spot basis in the Gulf since the thermometer up North got stuck at zero. The last flat-priced sale at the Gulf was a 60,000-bbl. part-cargo at 9.5¢, up 0.25¢. The next one may be higher.

The irony of the situation was that Gulf Coast No. 2 prices rose to just about on a par with East Coast contract deliveries. The Gulf is 9.5¢, f.o.b., and New York contract delivery, even after this week's rise, is still 10.2¢.

And every day the cold hangs on adds pressure for another hike in heating oil prices up North. Tank steamer rates have soared up to USMC+ 60% for spot Gulf-New York voyages. This means that spot No. 2 at 9.5¢, the Gulf, lays in at New York in spot ships at about 10.95¢.

Chicago light fuel oil prices are up, too. Spot truck lots were quoted last week at 11¢ for No. 1 fuel and 10.25¢ for No. 2, both up 0.5¢. This was not quite so strong an increase as the 0.25¢ hike at the Gulf, for the Upper Midwest has been fairly well supplied all season.

In contrast to fuel oils, gasoline prices are teetering in many areas. Stepped-up refinery runs, plus bad driving weather, have spelled out some pretty sharp declines in retail markets. Chicago was the weakest spot, and tank wagon was cut 2.7¢. Detroit prices were off 1.7¢. St. Louis retail prices were down 1¢. Gulf Coast cargoes can be shaded by 0.25¢ to 0.5¢.

The gasoline news, however, was not all bad. Advances in tank wagon of 1¢ to 1.7¢ were posted in upstate New York. Depressed spots in the Carolinas were up 0.8¢ to 1.6¢. Decatur (Ill.) prices took a spectacular hop of 10¢ a gal. to end a three-week war.

Quotas and No. 6 In the Caribbean:

Refiners in the Caribbean are on the fence about residual oil, and what to do about refinery runs. If U.S. import quotas are eased, the refiners would step up runs to make more heavy fuel.

On the other hand, Caribbean sellers would like to wind up in March with as little No. 6 inventory as possible. If U.S. No. 6 quotas stay put, then the refiners would draw down inventories.

Crude Awards For ANCAP:

Uruguay's oil agency, ANCAP, is on the fence too. There still is no answer on who will win the three-year 15,000 b/d crude contract.

ANCAP asked for a month's postponement on Jan. 1. But on Feb. 1, the word was that no answer would be forthcoming until mid-February.

Russians Slow Up On Chartering:

The Russians are doing very little chartering these days. Last month they took only two tankers for 12-month consecutives, and one other ship for three voyages from the Black Sea to Japan.

In contrast, Western companies were very active. Jersey Standard alone took 27 voyages from the Caribbean to the U.S. East Coast.

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of February 6

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12.25-13.25
- Gasoline, 92 oct reg....11.25-11-5
- **Kerosine....10.25↑-10.75↑**
- **Heating oil, No. 2....9.5↑-10↑**
- **Gas oil, 48-52, d.i....9.75↑**
- Fuel oil, bunker "C"....$2.30-2.40

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- **Gasoline, 93 oct research prem....10.875↓**
- **Gasoline, 87 oct research reg....9.5↓**
- **Gasoline, 80 oct research....8.75↓**
- **Gasoline, 70-72 oct motor method....8.625↓**
- **Kerosine....9.875↑**
- Heating oil, No. 2....8.625
- Gas oil, 48-52 d.i....8.875
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- **Kerosine....10.9-11.65↑**
- **Heating oil, No. 2....9.9-10.65↑**
- Fuel oil, No. 6....$2.62

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg....12.5-13.25
- Kerosine....11-11.125
- Heating oil, No. 2....9.5-9.75
- Fuel oil, No. 6....$1.80-1.90

Chicago, bulk
- **Gasoline, 92 oct reg....12.375↓-12.625**
- **Heating oil, No. 2....10.25↑-11.85↑**
- Fuel oil, No. 6 high sulfur....7.65

Los Angeles, rack
- **Gasoline, 88 oct reg....11.1↓-12.65**
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.90
- Heavy fuel, PS 400....$2.10-2.45

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....4.5-5
- Propane, Baton Rouge....5.875

Pennsylvania Lubes
- Bright stock, 25 p.t....26
- 200 vis. neutral, 25 p.t....28

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....26-27
- Neutral solvent, 200-210 vis....23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....26-27
- Neutral, solvent, 200 vis....23-24

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130....15.5
- Gasoline, 79 oct research....9
- Kerosine....9.625
- Gas oil, 48 d.i. minimum....9

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.69-2.97
- North Dakota, 36.0-36.9....2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....2.96-3.31
- Illinois Basin, flat....3.00
- Pennsylvania Grade, Bradford dist., flat....4.80
- California, Signal Hill, 21.0-21.9....2.33†
- North Louisiana-Arkansas, 36.0-36.9....2.72-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.425
- Virden (Man.)....2.285

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz....$3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, La Salina....1.85
- Lagomar, 31-31.9, Cardon....2.55
- Lagunillas Heavy, flat, La Salina....2.07

†*Differential per deg. of grav. varies*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.80
- Safaniya, 27.0-27.9, Ras Tanura....1.47
- Iran, 34.0-34.9, Bandar Mashur....1.78
- Iran, 34.0-34.9, Abadan....1.73
- Iraq, 35.0-35.9, Fao....1.72
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.59
- Qatar, 41.0-41.9, Umm Said....1.95
- N. Zone, Burghan, 23.5-24.4, Mina Saud....1.48
- N. Zone, Ratawi, 23.5-24.4, Mina Saud....1.41
- N. Zone, Eocene, 16.5-17.4, Mina Saud....1.28

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon....$2.17
- Iraq, 36.0-36.9, Tripoli, Banias....2.21

North Africa, Phillipeville, Algeria
- Hassi Messaoud, 48 and above....Withdrawn

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean..(USMC+50%) $4.27↑
U.S. Gulf-New York, dirty....(USMC+35%) $3.85
NWI-USNH, dirty....(USMC—52½%) $1.31↓
NWI-UK/Cont., dirty....(Scale—50%) 16/5*↓
Persian Gulf-UK/Cont., dirty....(Scale—50%) 24/—*
Persian Gulf-USNH, dirty..(USMC—65%) $4.45↑

**Sterling*

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Chicago 11 — Edward A. Callahan Jr., 520 N. Michigan Avenue, Mohawk 4-5800

Cleveland 15 — Marcus A. Loy, Jr., 55 Public Square, Superior 1-7000

Dallas 1 — James R. Pierce, 1712 Commerce Street, Riverside 7-9721

Denver 2 — J. W. Patten, Tower Bldg., 1700 Broadway, Alpine 5-2981

Houston 25 — D. O. Hanson, 724 Prudential Bldg., Jackson 6-1281

Los Angeles 17 — Peter S. Carberry, 1125 W. Sixth St., Huntley 2-5450

New York 36 — David G. Sawyer, 500 Fifth Ave., Oxford 5-5959

Philadelphia 6 — H. Sherman Davis, 6 Penn Center Plaza, Locust 8-4330

Pittsburgh 22 — Marcus A. Loy, Jr., 4 Gateway Center, Express 1-1314

Portland 4 — Scott Hubbard, Room 445, Pacific Bldg., Capital 3-5118

San Francisco 4 — William C. Woolston, 255 California St., Douglas 2-4600

Tulsa 3 — J. A. Hartley, 522 South Boston, Luther 7-5594

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H. A. Jarvis

L. E. Lowry

HARRY A. JARVIS is the new president of Creole Petroleum Corp., Caracas, Venezuela, and **LEO E. LOWRY** succeeds him as executive vice-president. Jarvis succeeds **Arthur T. Proudfit,** who is retiring. Jarvis joined Creole 14 years ago, after serving with another affiliate of Standard Oil Co. (N.J.), in Argentina. In 1949 he was named manager of Creole's refinery department, and in 1950 became a member of the company's management committee. He was elected a director in 1952 and executive vice-president in 1954. Lowry, who has been with Creole since 1939, has held a series of positions in the comptroller's department, and was most recently comptroller. In 1953 he was elected a director.

WILLIAM J. ROGERS has been promoted to chief petroleum engineer in the general office of Sinclair Oil & Gas Co.'s production department, at Tulsa. He succeeds **Lloyd Holsapple,** who recently was named manager of the unitization and part interest department. Rogers, who joined Sinclair in 1937, has been assistant chief petroleum engineer in Tulsa since 1959.

LOUIS W. GARDNER has been appointed director of the geophysical research division for Gulf Research & Development Co., a subsidiary of Gulf Oil Corp. He succeeds **Dr. T. J. O'Donnell,** who was recently named associate director of the Gulf laboratories. Gardner, who joined the Gulf organization in 1930, has been technical assistant to the director of the geophysical research division of Gulf Research since 1950.

E. G. HOOVER moves up to manager of marketing for Continental Oil Co.'s Ft. Worth division, a part of Conoco's southwestern region. He succeeds **G. W. Brown,** who has been named sales development manager for the seven-state region, with headquarters in Ft. Worth. Hoover was formerly marketing operations manager for southwestern region.

E. DALE MOUNT, JR., vice-president of Dale Mount Drilling, Inc., Dallas, is the 1961 chairman of the Dallas-Ft. Worth chapter of the American Assn. of Oilwell Drilling Contractors. He succeeds **James H. Phillips, Jr.,** president of King-Phillips Drilling Co., Ft. Worth. **J. A. Leatherwood,** superintendent of Leatherwood Drilling Co., Jacksboro, is the 1961 vice-president. Other new officers are **J. A. Kelly,** Reed Roller Bit Co., Dallas, secretary, and **William Thomas,** Security Engineering Division, Dresser Industries, Inc., Dallas, treasurer.

H. L. WEEKS is the new superintendent of production for Cosden Petroleum Corp., with offices at Big Spring, Tex. Weeks, who will be in charge of drilling and production operations, succeeds the late **H. T. Bratcher.** Weeks has been serving as Cosden's production superintendent for the western portion of West Texas and New Mexico, with offices at Penwell, Tex.

JAMES A. WILSON, vice-president of the Texas distribution division of United Gas Corp., transfers from Houston to the company's general offices in Shreveport, La. He will be in charge of the administration of distribution operations for the company in Texas, Louisiana, and Mississippi. **E. L. Henderson,** vice-president of the Louisiana-Mississippi distribution division, at Shreveport, will continue in that capacity, with direct supervision over operations in the two states.

W. E. Avery

J. V. Malcolmson

WALLACE E. AVERY has been elected vice-president in charge of West Coast operations for Texaco Inc., with headquarters in Los Angeles, and **JAMES V. C. MALCOLMSON,** general manager of Texaco's marine department, has been elected a vice-president in New York. Avery has been secretary of Texaco in New York, since 1956. **Maury L. Nee,** formerly director of the budget at Texaco's New York headquarters, succeeds Avery. Malcolmson joined Texaco's marine department in 1942, and was appointed assistant general manager in 1952, and general manager in 1954. **Ronald D. Nelson** has been appointed assistant to **Marion J. Epley, Jr.,** Texaco's senior vice-president in charge of world-wide sales. Nelson was most recently manager of Texaco (Trinidad), Ltd. and Texaco Antilles, Ltd., with headquarters in Trinidad. The two marketing subsidiaries operate in the Eastern Caribbean area of Trinidad, Tobago, the Guianas, Suriname, and the Leeward and Windward Islands.

P. H. DuVAL transfers from Shreveport, La., to Bartlesville, Okla., as manager of Cities Service Petroleum Co.'s natural gas division. He was formerly manager in charge of nat-

ural gas sales and crude oil supply and transportation for Arkansas Fuel Oil Corp., one of the Cities Service companies. **William F. Hanagan** will continue as superintendent of Cities Service's natural gas division at Bartlesville, and **C. D. McDaniels,** formerly with Arkansas Fuel, will join the division as gas contracts engineer.

DONALD I. LAWLESS is the new president of Bishop Oil Co., San Francisco. He succeeds **Louis J. Brunel,** who is retiring from active management, but continues as a director and advisor. At the same time, Lawless was also named to succeed Brunel as president of Canadian Bishop Oil, Ltd., Calgary, a subsidiary. Lawless has been vice-president of the Canadian subsidiary since 1959. He joined Bishop in 1948 as a geologist in Wichita, Kan., and was named chief geologist for the company in 1950. In 1952 he transferred to Calgary as manager of exploration for the subsidiary, and returned to the United States in 1954 as Mid-Continent division manager for the parent company.

D. I. Lawless

P. N. Temple

PAUL N. TEMPLE has been elected president of Esso Iberia, Inc., Spanish exploration affiliate of Standard Oil Co. (N.J.), and president of Esso Standard Espanola, S.A., Jersey's marketing affiliate in Spain. He will be located in Madrid. Temple was formerly assistant manager of the negotiations division of Jersey's producing coordination department in New York. He joined the company in 1954 as a negotiator in that department, and later served as Jersey's assistant government relations counselor, in Washington, D.C. Prior to joining Jersey Standard, Temple was administrative assistant to the vice-president for foreign operations for Celanese Corp. of America.

ARNOLD F. KAULAKIS has been elected vice-president, a director, and a member of the executive committee of Esso Research & Engineering Co., Linden, N.J. He will be responsible for engineering operations. Kaulakis, who joined the company in 1942, has been acting general manager of engineering since last March.

WILLIAM O. DAVIS has been named manager of Texas Gas Transmission Corp.'s pipeline division at Memphis, Tenn. Davis, who was formerly manager of the Louisiana pipeline division at Lake Charles, La., will be responsible for supervision of pipeline maintenance, dispatching, and housing for the Memphis division. At the same time, **Wayne Sweet** was named assistant superintendent of the measurement department in the company's home office at Owensboro, Ky. Sweet, formerly assistant manager of the Louisiana division, joined the company in 1943 as a meter technician.

W. R. MENDENHALL moves up to manager of crude oil and plant product sales for California Co. division of California Oil Co., in New Orleans. He was formerly assistant manager, crude oil, natural gas, and plant product sales, for the company. At the same time, **W. E. Gibson** was promoted to sales representative, natural gas, also in New Orleans. He was formerly staff and administrative assistant for Calco.

L. T. SLOAN moves up to assistant manager of Texas Gas Transmission Corp.'s Louisiana division. He will assist in the direction of the company's expanded gas-gathering, measurement, and dispatching operations in the division, which includes South Louisiana and the immediate Gulf Coast area. Sloan joined Texas Gas in 1937, and was most recently assistant division superintendent in the pipeline department at company headquarters at Owensboro, Ky.

J. BYRON BROWN, formerly with Mediterranean Refining Co., jointly owned by Caltex and Socony Mobil Oil Co., in Lebanon, transfers to The Hague as manager, manufacturing and operations, for Caltex Petroleum Maatschappij (Nederland) N. V. Brown was general manager of Medreco's refinery at Sidon. **J. E. Creecy,** who has been manager of the Caltex, S.A.F. refinery at Bec D'Ambes, near Bordeaux, succeeds Brown in Lebanon.

J. C. KELBAUGH has been named administrative superintendent of Shell Oil Co.'s Houston refinery, succeeding **P. E. Keegan,** who is retiring. Kelbaugh, who joined Shell in 1939 as a service station salesman in the New York division, served as district manager of marketing sales in the New York and Baltimore divisions, before becoming personnel manager in Baltimore in 1954. In 1957, he transferred to Shell's head office personnel and industrial relations department in New York, serving first as assistant manager of the wage and salary division, and later as industrial relations representative. In 1958, he went to the Indianapolis marketing division as operations manager, and was transferred to the Houston refinery in 1960.

HARRY L. MOORE has been appointed eastern regional manager of Mobil Oil Co.'s purchasing department, with offices in New York. Moore, who joined Mobil as service station salesman in 1932, was most recently manager of the company's refinery in 1960.

GENE L. SHAW is the new regional geologist for the Rocky Mountain region of Lion Oil Co., a division of Monsanto Chemical Co., with headquarters in Denver. Shaw joined Lion in 1959 as a geologist and advanced to senior geologist the next year.

Leslie L. Greenfield is the new district geologist in Lion's southern region. Greenfield, who has been with Lion since 1956, will be located at its district exploration office in Houston.

EDWARD J. STEINMETZ has been named assistant director of the management engineering department for Ashland Oil & Refining Co., Ashland, Ky. He will also continue as manager of the company's methods and procedures section.

WAYNE H. WALKER moves up to vice-president, administrative, for Pan American International Oil Corp., with offices in New York. He has been manager, administrative, and a director of the company since 1958. Before that, he was with Pan American Petroleum Corp., Pan Am International's parent.

W. H. Walker

J. T. Wilson, Jr.

JOSEPH T. WILSON, JR., has been elected secretary-treasurer and a director of Sun Oil Co., Philadelphia. He succeeds **John C. Agnew,** who has retired. **Williams S. Woods, Jr.,** assumes Wilson's former responsibilities as assistant secretary-treasurer. Woods was previously manager of the treasury department's financial and corporate stock division and assistant secretary-treasurer. **John P. Leech,** formerly assistant to the manager of the financial and corporate stock division, succeeds Woods in both positions. In addition to their new responsibilities with the parent company, Wilson, Woods, and Leech will assume executive positions with Sun's subsidiaries.

ROBERT W. EXLINE has been named assistant manager, crude oil supply and pipeline department, for Ashand Oil & Refining Co., Ashland, Ky. Exline, who joined the company in 1950, was most recently administrative assistant in the crude oil supply and pipeline department.

HUGH W. STRICKLAND and **CHARLES F. FOGARTY,** vice-presidents of Texas Gulf Sulfur Co., Houston, have been promoted to senior vice-presidents. **Bachmann G. Bedichek,** Texas Gulf Sulfur's assistant secretary, has been named senior counsel, and **Harld B. Kline,** administrative assistant, has been elected secretary. Kline succeeds **E. F. Vander Stucken, Jr.,** who is retiring as vice-president and secretary, but continues as company consultant. Strickland will be in charge of sulfur production, and will head all corporate activties in the Gulf Coast area. Fogarty will be responsibile for the company's exploration activities, and for its new $25-million potash project in Utah.

Canada's Exemption Needs Review

CANADA HAS DECREED that its national oil policy will be to encourage a substantial increase in exports of its surplus to the U.S.—a market that is already amply supplied.

Canada, like any other nation, has the right to decide what its policies are to be. But criticism of the latest Canadian declaration is justified by U.S. oil men, since that government has chosen to take advantage of a special privilege that Canadian oil enjoys in the U.S. market.

The U.S. government exempted Canadian oil from quota restrictions because of mutual defense considerations. The exemption was not intended to provide a bonanza to be exploited.

PERHAPS THE MOST SUCCINCT COMMENT on the Canadian government's plan was made by a Canadian. R. H. Bullied, president of the Canadian Assn. of Oilwell Drilling Contractors, said, in part: "Early optimism may not be justified if the real measure of the success of our national oil policy must be measured in the terms of the manner in which the U.S. and the major oil companies of that country resolve the newly created problems which they will face."

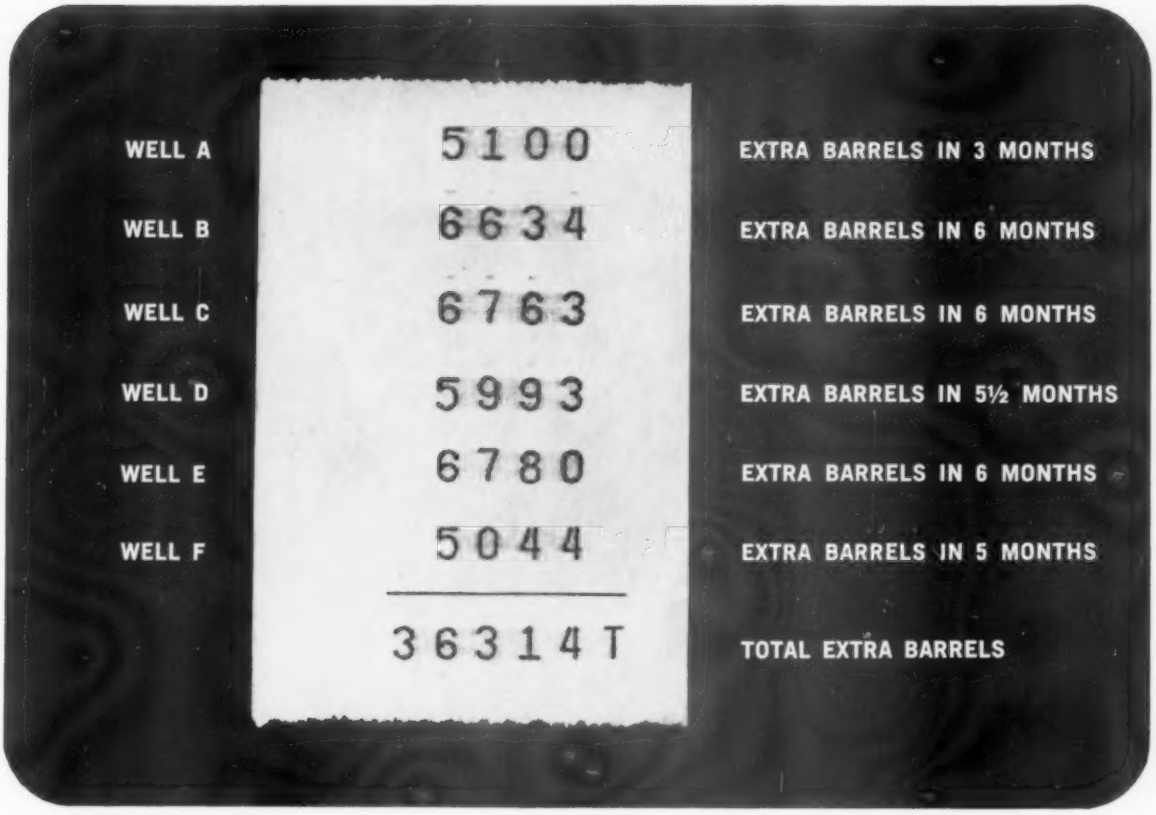
Many Canadian producers have been clamoring for a declaration of a national oil policy. They claimed that the producing branch of the industry was sorely in need of government help, despite the 4% growth in production of crude last year. The Ottawa government faced a choice between promoting a substantially greater use of oil from the western provinces in the east, possibly by building a pipeline to the Montreal oil area and placing restrictions on the use of imported oil, or the virtually do-nothing plan offered.

George Hees, Canada's Minister of Trade & Commerce, told the House of Commons: "The increase in exports which is integral to the government's program is wholly consistent with the growth in sales of Canadian oil contemplated when the exemption from U.S. oil import controls was established, under which Canadian oil is relatively free to move into the U.S. by overland means of transportation."

IF THE CONTEMPLATED INCREASE in exports mentioned by Minister Hees involved doubling the volume of Canadian oil entering the U.S.—the volume now indicated by the Canadian government—then the U.S. government is duty bound to re-examine the exemption enjoyed by Canadian oil. It is not in the interest of the mutual defense of the U.S. and Canada to boost imports from Canada to the neighborhood of 250,000 b/d.

Such a volume would have a further adverse effect on crude production in the U.S., which declined last year.

could you use production increases like these?



This operator got 36,314 barrels of extra oil from six wells within six months after they were fractured by Dowell. Total service costs for the six treatments averaged only $2931.79 per well. The extra oil produced during the first six months, as a result of fracturing, cost less than 49 cents per barrel. Additional production after the first six months will be almost clear profit.

All six wells, in Manitoba, Canada, were treated by Dowell at about the same time. All were given similar treatments in which 50,000 pounds of 20-40 mesh sand, at 2-3 pounds per gallon of lease oil, were injected into the pay zone at about 40 bpm. The production gain was determined for each well by comparing total production for equal periods immediately before and after treatment. Production periods were six months for three of the wells. Records for the other three wells covered 5½, 5 and 3 months, both before and after treatment.

Your production problem may be different from the one faced by this operator. The chances are good, however, that Dowell engineers can design a treating program to help you produce more oil at less cost per barrel.

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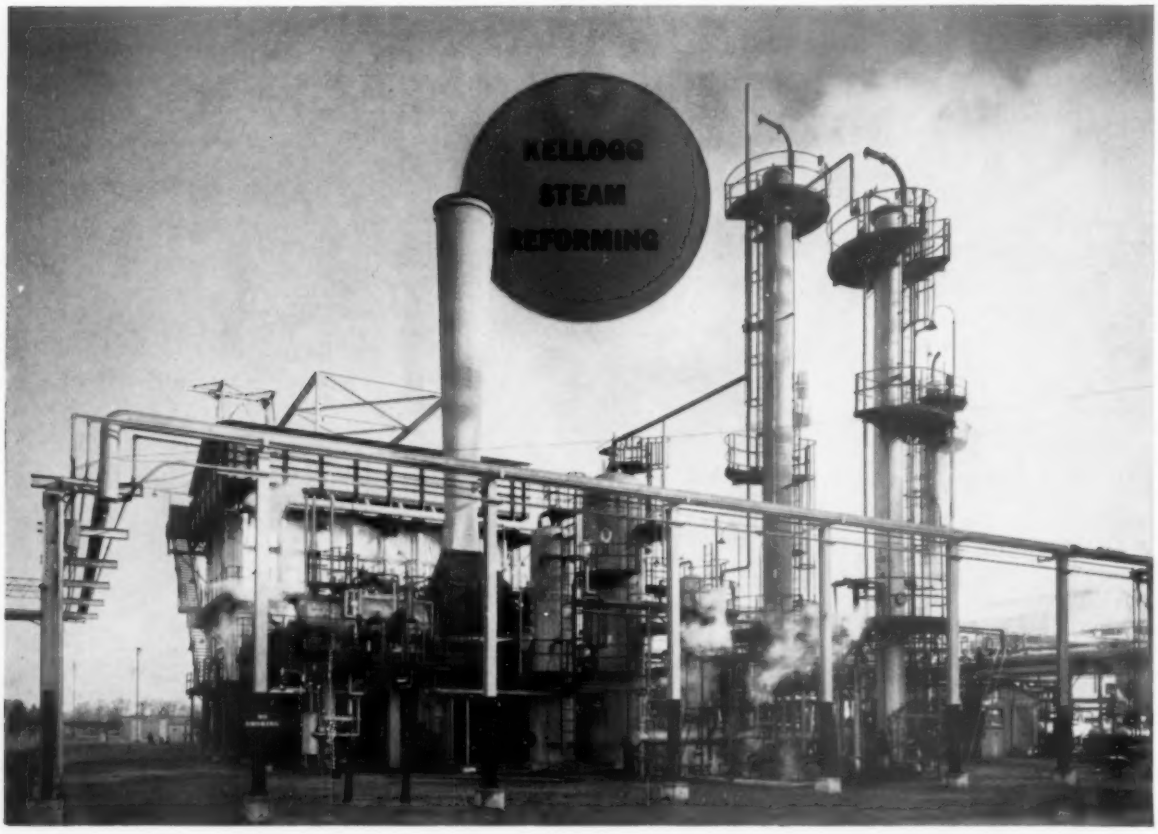

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NEW BROCHURE gives detailed description and economic data on Kellogg's ammonia process. Write:

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